JULY 1950

National Safety News

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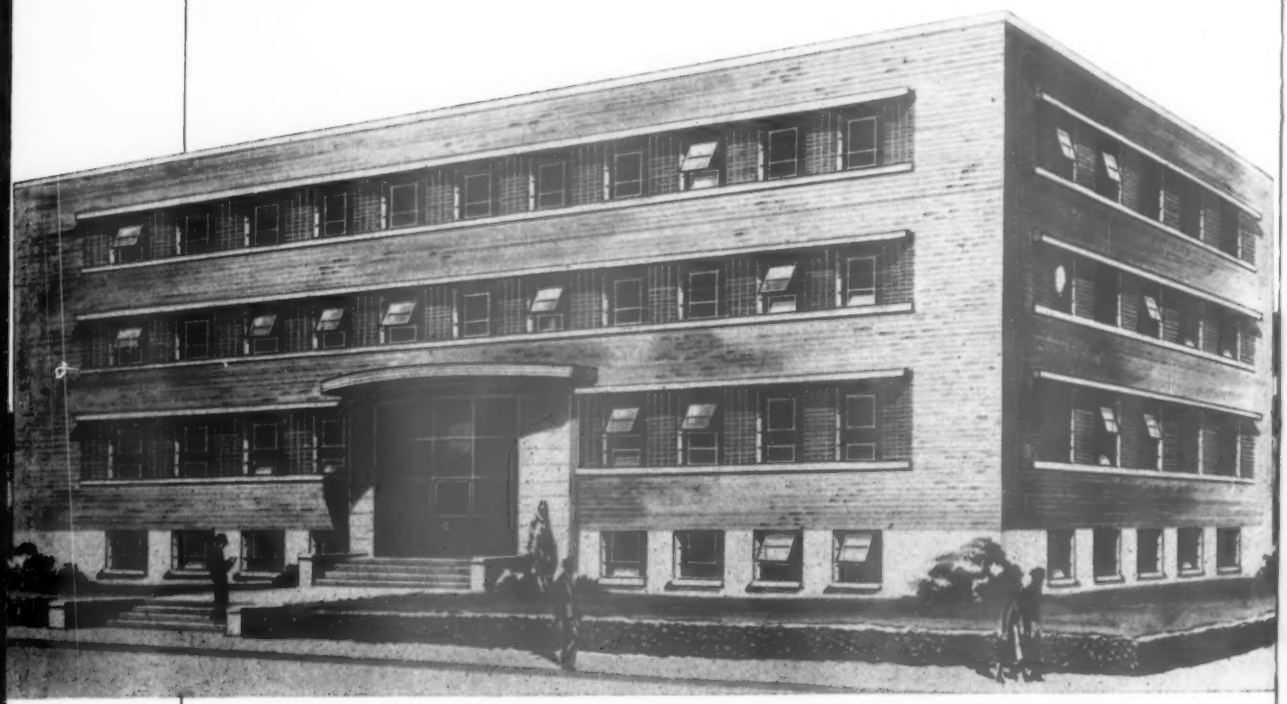

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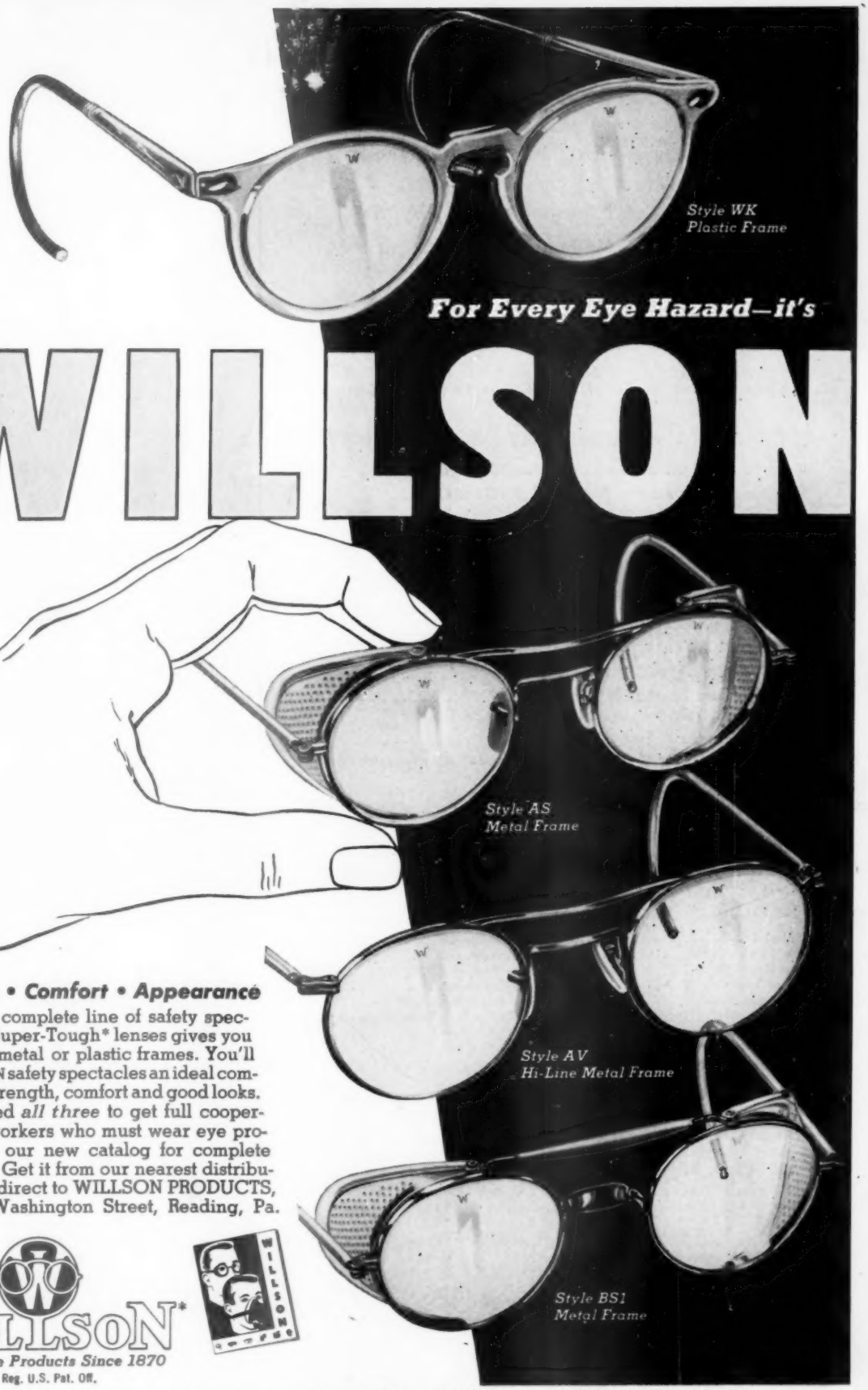

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NATIONAL SAFETY NEWS

Published monthly by the National Safety Council

JULY, 1950 Vol. 62, No. 1

THE COVER: "Hoist!" signals the crane director to the operator and the load moves upward. Standard signals should be thoroughly understood by all crane and signal men.

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27,700 copies of this issue were printed.

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In This Issue . . .

MANAGEMENT supplies many of the keys to industrial safety but it is the safety man who must use them properly. Here are the comments of a prominent industrialist on safety as it concerns his organization and a warm tribute to safety men and organized safety work. (Page 18).

• • •

An industrial plant may conform to the requirements of health and safety codes without being a good place to work. Modern trends in design and construction reflect a clearer understanding of human needs. (Page 20).

• • •

Off-the-job accidents are costly to industry. As a cause of time lost from work, they outrank occupational accidents in most plants. In this month's Industrial Safety Panel ten members summarize their activities in this phase of safety. (Page 26).

• • •

Our Safety Engineer, whose diary you have undoubtedly been following, is wallowing in the slough of despond. In spite of an intensive program of thoroughly sound measures, accident rates have shot up. Perhaps the program needs a shot of the ballyhoo he has previously despised—a selling campaign to give employees an emotional stake in safety. So he goes into a huddle with the advertising manager and the company's supersalesman president. (Page 36).

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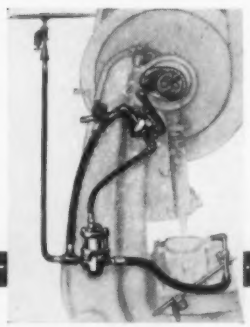

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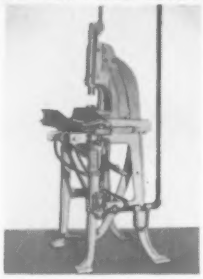

Schrader Foot Press Controls eliminate fatigue, increase production. There's less spoilage because there is uniform pressure in each stroke. Use hand-operated set shown for maximum safety. Also complete sets for foot or combined hand-and-foot operation.

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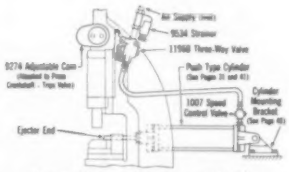

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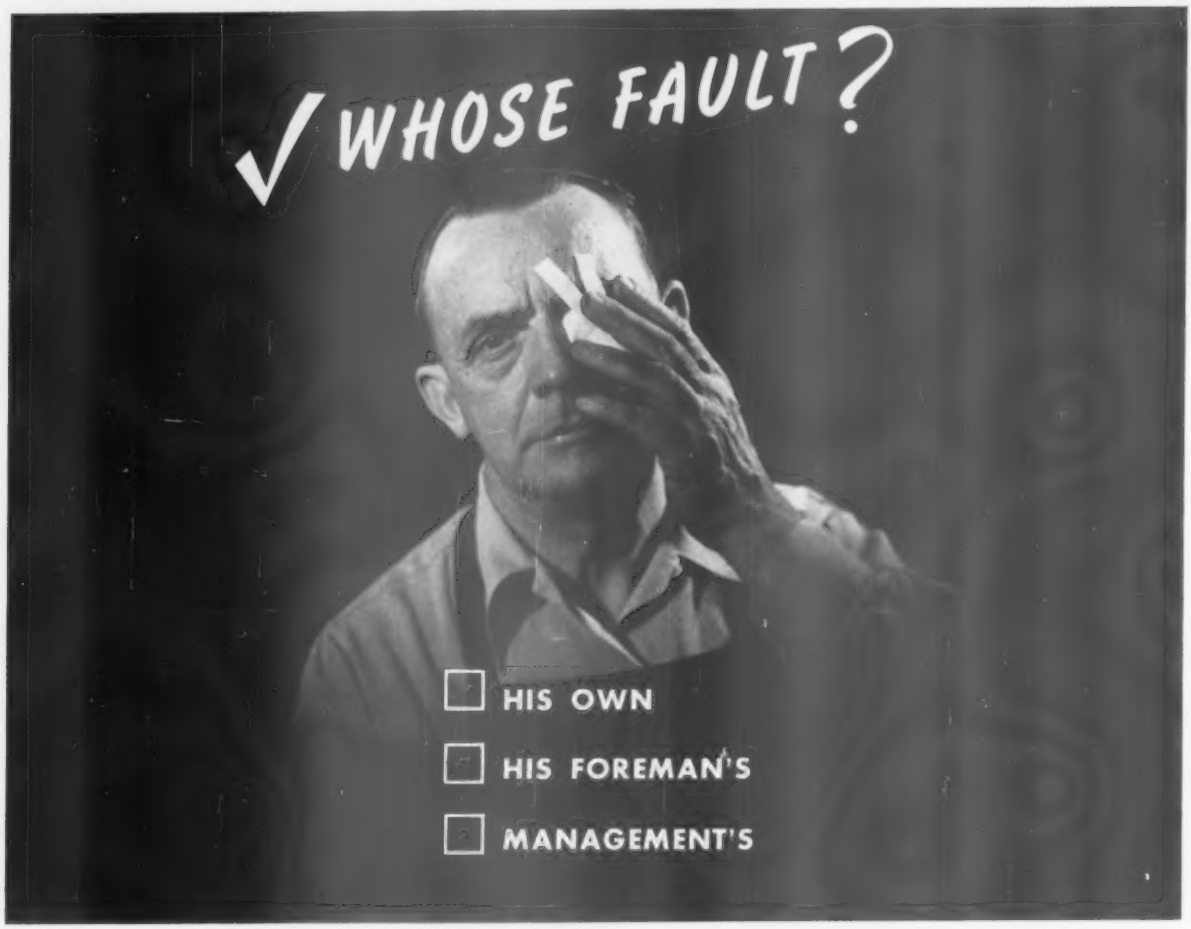

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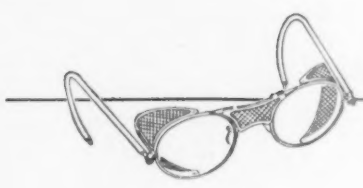

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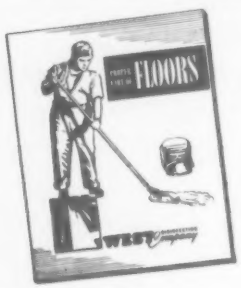

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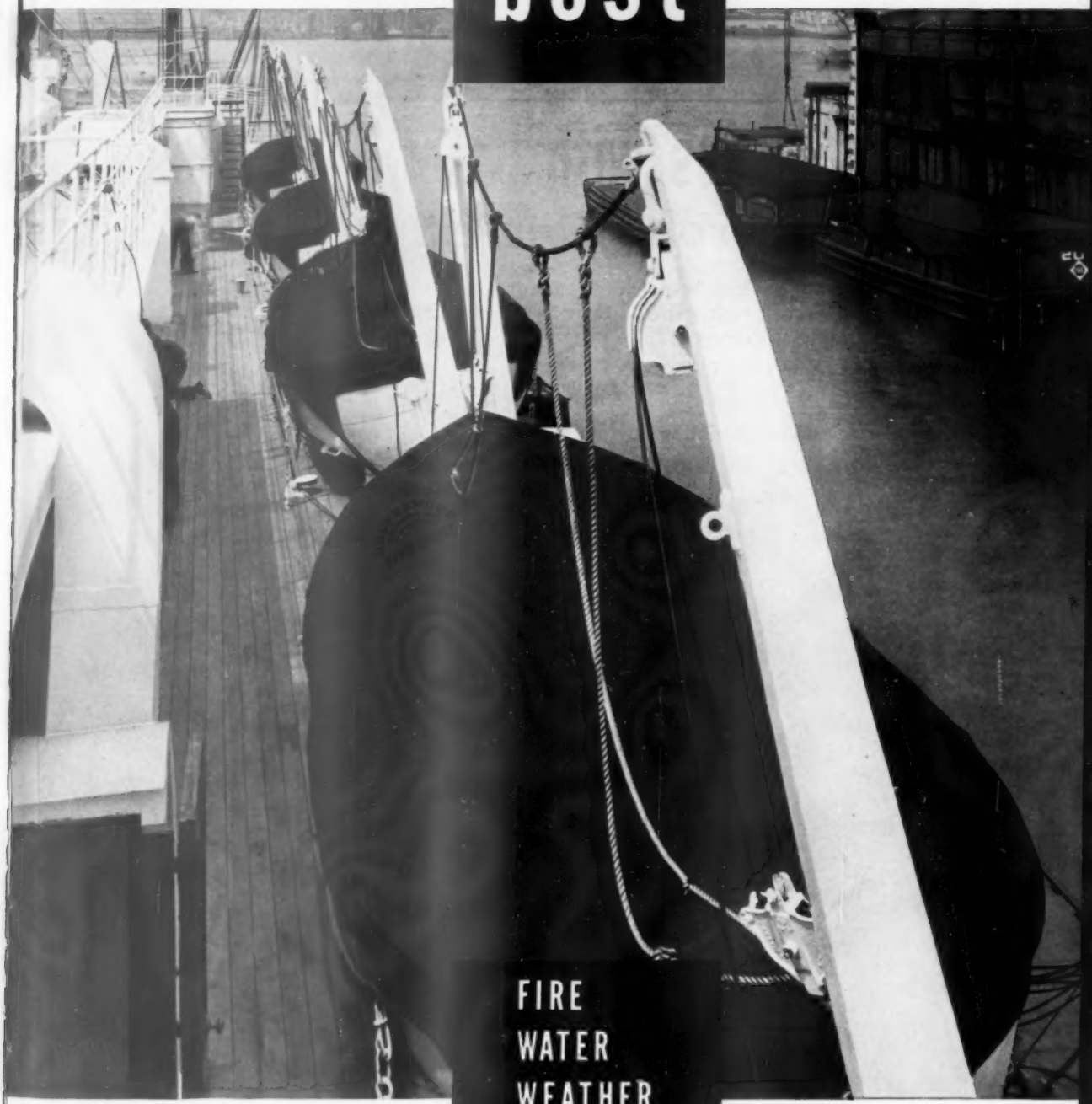

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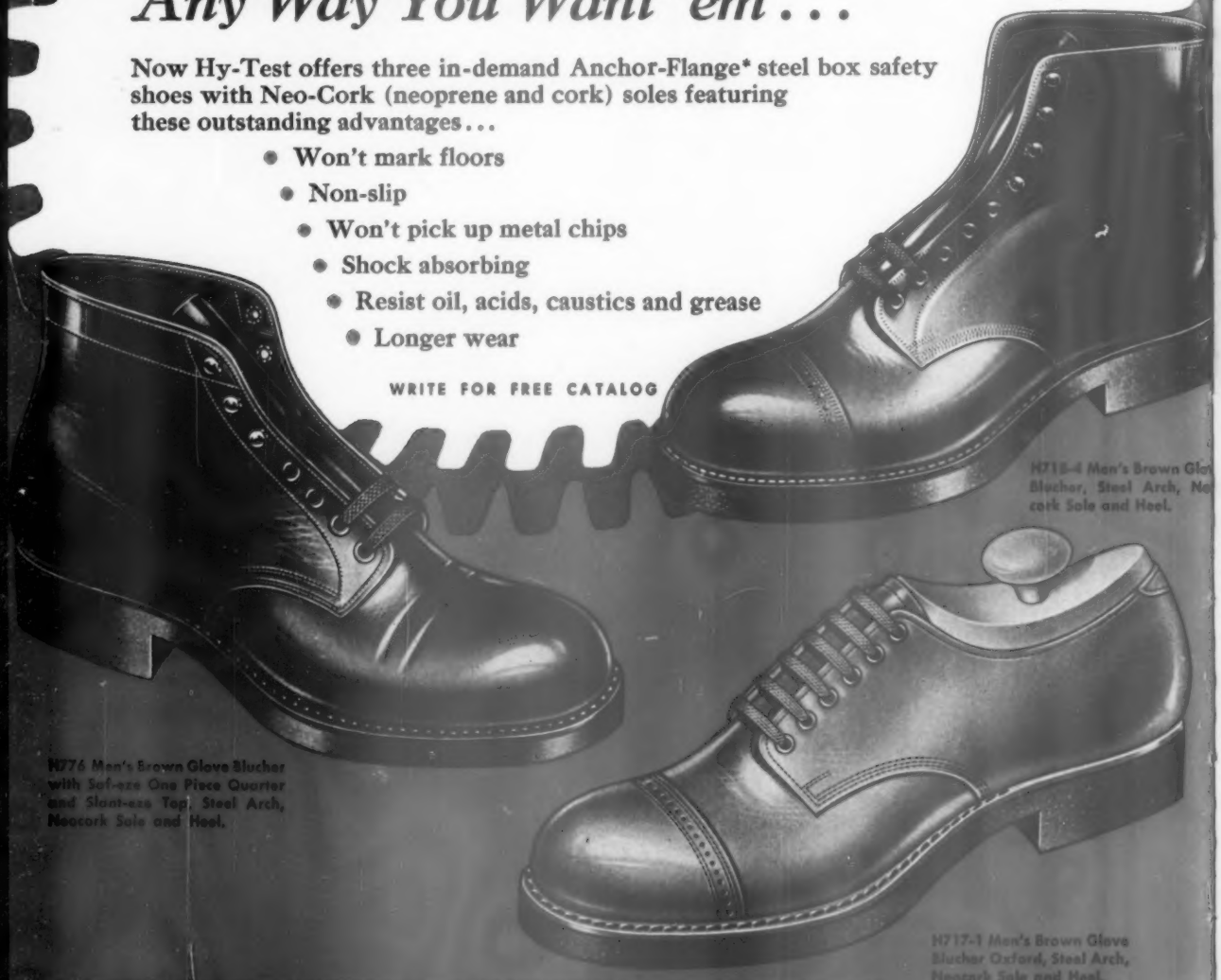

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NATIONAL
SAFETY NEWS

JULY, 1950

FREEDOM IS A SET OF RULES

ONE HUNDRED and seventy-four years ago, 13 nations declared their independence from Great Britain. Because they were 13 nations, each free to do as it pleased, they almost lost the war for independence, upon which all their freedom depended.

This political lesson, taught with waste of blood and treasure, was driven home to the leaders and people of the 13 nations, and they soon united firmly as one nation, under a strong set of rules, the Constitution of the United States of America.

There are few more independent folk than the farmers of America. Most of them are the operators of their own enterprises, taking part of their return from their labor in the form of freedom from bosses, from discipline imposed by others, from the rigid bonds of the time clock.

But these American farmers, loving independence, have found that doing "just as you please" is not, in the final analysis, a satisfactory way of life. In particular, they have found that a tremendous waste of human resources through accidents is the inevitable result of a refusal to operate under an intelligent, self-imposed set of rules.

So, this year, farm organizations have chosen as the primary theme of National Farm Safety Week the injunction, "Know and obey farm safety rules." During the week of July 23 to 29, this theme will be hammered hard in thousands of meetings, in the press, on the radio, and through every other channel of communication.

None of us, least of all farmers, like to be governed very much by rules. But the fight against accidents is a true fight for human freedom, and success in that fight can only come with self-discipline founded upon knowledge and intelligence.

National Farm Safety Week is itself an expression of the will of influential sections of the farm population to improve the status of a working group whose accident rate has been tragically higher than the rate in manufacturing and in several other major industries.

Annually since 1944, the National Safety Council and the U. S. Department of Agriculture have sponsored the week, with the ever-increasing support and help of all leading farm organizations.

Each of the six weeks already observed, and the seventh to be observed this year, is also an expression of the will of industry to cooperate with farmers to improve rural safety.

Industrial concerns dealing directly with farmers —the farm equipment manufacturers, the food processing industries, transportation companies, etc. — have an obvious and direct stake in farm safety.

But every industry in the country depends in large measure upon the farms for its materials, its customers, its future labor supply.

I think there is something your company can do to advance farm safety, this year, next year, and all the years to come. Perhaps you can distribute farm safety materials through your dealers or customers. You may want to prepare your own materials. I know that your financial help can be of great service to farm safety. Whatever you do I hope you will do with the same energy and intelligence that you show in tackling problems in your own organization.

Ned H. Dearborn

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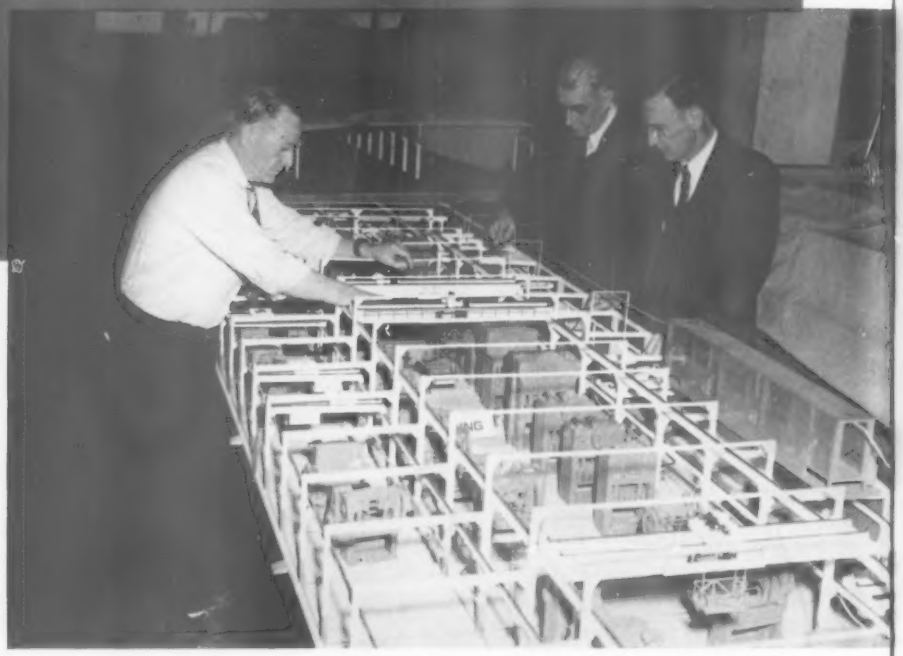
KEYS to accident prevention



A scale model of a press shop in Budd's Hunting Park plant is being checked for layout, crane operation, trucking, and aisles. Left to right are Frank Donahue of the Methods and Equipment Department; Amos Smethers, assistant safety director, and Robert Luckenbach, safety director.

By EDWARD G. BUDD, JR.

A PROMINENT author on industrial safety has said, "Men engaged in accident prevention have caught the vision of a real need and a great opportunity for service to their fellow men—and the safety movement goes on and grows as this vision advances."

Management is furnishing some or all of the keys to industrial safety, but it is the safety men who make sure they are used properly, so that every door to our ultimate goal of absolute accident prevention will be open.

Management recognizes the good work which has been done, largely through the efforts of men who have caught the vision. However, I feel that industrial safety is still relatively in its infancy. One major key must still be shaped and polished to fit the human lock—perhaps the most stubborn lock of all.

It has been said truly, "The best safety device is a careful man." But even that clever catch phrase approaches the problem from a somewhat selfish personal angle. It does not take into account the attitude of one working man to another.

Historically, safety's role in industry is founded on unimpeachable authority. No less a work than the Bible gives a clear mandate. In Deuteronomy 22:8 you will find, "When thou buildest a new house, then thou shalt make a battlement for thy roof, that thou bring not blood upon thine house, if any man fall from thence." But like many another Biblical mandate, that admirable

suggestion has been honored in the breach.

Soon after 1800, the Industrial Revolution that started in England began to be felt in this country. Steam engines were imported into Massachusetts and mills were constructed to manufacture cotton textiles. The introduction of the cotton gin early in the 1800's gave impetus to our industrial transformation, but the greatest strides were made after the Civil War.

For almost a century little attention was paid in legislative circles to the injured man's problems. Regulatory laws were passed as early as 1867, but they were full of loopholes and technicalities.

The first positive management step toward leadership in industrial safety was made in 1892 at Joliet Works of the Illinois Steel Company, which has since been known as "the birthplace of the American industrial accident-prevention movement."

Continued pressure from the public resulted ultimately in the enactment of workmen's compensation legislation, the first such state law being passed by New Jersey in 1911. It was under these laws that rapidly mounting claims began to bring forcibly to management's attention the inescapable fact that accidents were costly.

It was learned that direct costs

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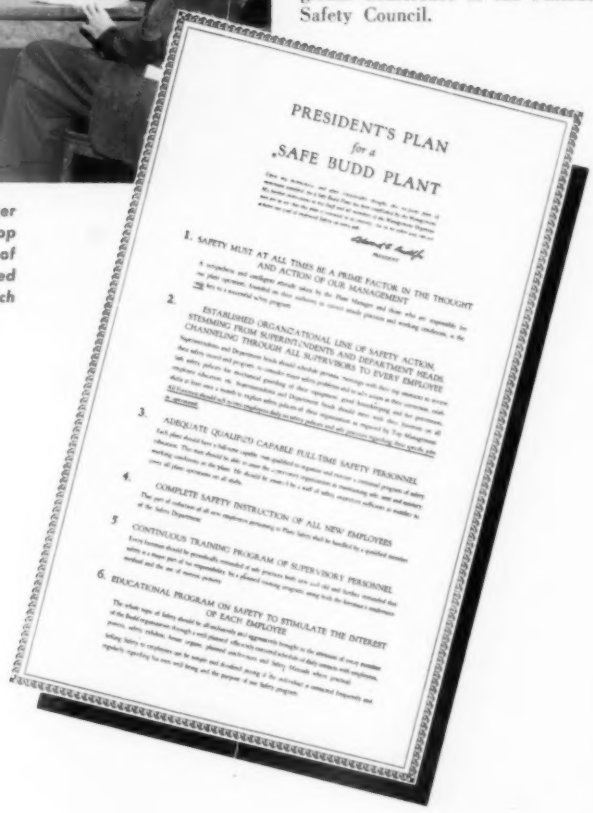
EDWARD G. BUDD, JR., president of the Budd Company, Philadelphia, has had a varied experience in industry. Upon graduation from Wesleyan University in 1923, he began his apprenticeship in the Budd organization. Here he learned tool and die making and later spent a year with the Citroen Works in France. Returning to the U. S. A. he served the Budd Company as superintendent of methods and equipment, night superintendent, director of purchases, vice-president and general manager, executive vice-president. He has been president since 1946. The accompanying article has been condensed slightly from an address before the Sixteenth Annual Regional Conference of the Philadelphia Safety Council.


PRESIDENT'S PLAN
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1. SAFETY MUST AT ALL TIMES BE A PRIME FACTOR IN THE THOUGHT AND ACTION OF OUR MANAGEMENT

2. ESTABLISHED ORGANIZATIONAL LINE OF SAFETY ACTION STEMMING FROM SUPERINTENDENTS AND DEPARTMENT HEADS CHANNELING THROUGH ALL SUPERVISORS TO EVERY EMPLOYEE

3. ADEQUATE QUALIFIED CAPABLE FULL-TIME SAFETY PERSONNEL

4. COMPLETE SAFETY INSTRUCTION OF ALL NEW EMPLOYEES

5. CONTINUOUS TRAINING PROGRAM OF SUPERVISORY PERSONNEL

6. EDUCATIONAL PROGRAM ON SAFETY TO STIMULATE THE INTEREST OF EACH EMPLOYEE

Every Monday at 10 a.m., Ernest R. Schmidt, manager of the Hunting Park Plant, holds a meeting of top production men. Safety is usually the first topic of discussion. Here Mr. Schmidt is displaying an enlarged copy of "President's Plan for a Safe Budd Plant" which will occupy a prominent place in each plant.

Edward G. Budd, Jr.

Engineering
PLANTS FOR PEOPLE

By J. K. GANNETT

WHENEVER management constructs a new plant or makes an addition to an existing plant, it must justify the cost. Either it or the engineers it employs must take into consideration such factors as the introduction of new methods, better controls and layouts, reductions in costs of handling materials, improvement in product quality and lower maintenance costs.

Sometimes savings can be gained by moving from a multi-story to a single-story structure or by moving to a better location. Also important are the quality of labor available, its adaptability for the kind of manufacturing processes involved, and labor rates. These and other factors can be used to determine the final cost of the product so that the manufacturer can keep abreast of competition.

While architectural styles change, you can't buy buildings as you would a new automobile, just to keep pace with your neighbors. Industrial plants are not built on this basis. The final cost of the manufactured product and getting it to market are the things that count.

The modern industrial plant is a far cry from the factory built 35 or 40 years ago. It reflects management's increased interest in good human relations. The value of good working conditions has long been recognized. They are tied in closely with cleanliness, noise control, safety, effective use of color, elimination of disagreeable odors, good ventilation and many other things. They affect the pride that the employee has in his plant, good morale, good health, and a high sense of loyalty to the employer. Those factors not only attract the better employee, but they assist in building team spirit in the plant and indirectly render a community service by bringing about in the community those high qualities exemplified in the plant.

It doesn't take an advocate of portal-to-portal pay to recognize that most folks figure that their work day begins when they leave home and doesn't end until they are back home again. "Engineering the plant for people" starts with the selection of a site.

In a tight labor market, location might affect the cost of operations as much as the proximity of raw materials and markets. Accessibility may be the most important factor affecting the promptness with which folks "ring in" for work.

In some cases, the advantages of decentralization and outlying locations, which are entirely without public transportation services,

Aerial preview of The Lincoln Electric Company's new plant at Euclid, Ohio. It shows a scale model in the actual plant setting. Everyone will enter plant and offices through a ground level entry building and pass under railroad siding and truck docks to the service floor where office lobby and plant entrance are located.

J. K. GANNETT is Vice President and Director of Engineering and Research, The Austin Company, Engineers and Builders. This article has been adapted from a paper presented before the Industrial Hygiene Foundation of America, Inc.

Buses used by the Upjohn Co. to transport employees from Kalamazoo to its new plant drive down a ramp to an enclosed loading platform at a central location. From there employees reach their jobs through passages below the main production floor. Exposure to weather and traffic is thus minimized.

are great enough to justify companies in the establishment of their own bus service — either with a view to providing transportation free or at nominal cost.

Whether the plant is dependent on public transportation or has some service of its own, it is the company's responsibility to provide for the kind of loading and unloading which will not only eliminate traffic hazards but will also reduce the physical effort required to reach the plant. Thus, if the plant is on a main highway, space should be provided where buses can at least pull off to the side for loading and unloading. Where large numbers of employees have to be handled in the presence of heavy traffic, an underpass or overpass may be required to eliminate congestion and obtain quick access to and exit from the plant.

The Upjohn Company has solved its problem by bringing buses right into the plant. It has established a special bus line to serve its new plant on a 1,500-acre rural site south of Kalamazoo, Michigan, three miles from the nearest residential area. This type of drive-facility, which connects with passages to all parts of the big plant, gives employees the same advantages enjoyed by millions of city subway and rapid transit passengers who get to their downtown office jobs through interconnecting tunnels.

Any large plant has the problem of employee parking. The need for engineering here is just

Instrument board in monitoring room of Western Electric Company's new electronics plant gives engineer in charge full picture of atmospheric conditions throughout the plant. Operation of the plant's 17 individual air-conditioning systems can be checked. Signal bells and visual signal panels monitor hydrogen and smoke detection systems.

Intensity of space utilization and variety of work performed are indicated in this section of Western Electric's electronics plant in Allentown, Pa. Special double duct air-conditioning systems and auxiliary ventilators have been designed to satisfy the needs of these areas. Ceiling height is 18 feet and semi-recessed fluorescent lighting maintains general illumination of 45 footcandles. Individual bench lamps boost intensity required for precision jobs. Acoustical tile ceilings provide quieter surroundings.

Modernization can give a decided lift to an old plant and the improvement is appreciated by both employees and the community. Here is a before-and-after picture of the plant of Church & Dwight, Inc., at Syracuse, N. Y.

Quarry tile has been used for floors and clear glazed tile for sidewalls and partitions in the sidewalls and partitions in this toilet room which adjoins the men's locker room at the General Electric plant in Tiffin, Ohio. Duct work installed in this area insures controlled ventilation.

as basic as it is in any phase of production layout. It isn't so much a question of how much space to allow as it is the way in which the space is to be laid out and the traffic controlled. The establishment of guides and markings insures the proper use of the area.

At the entrance to the plant, adequate shelter and ample capacity for handling the traffic are particularly important during wintry weather. The simple employees' entrance and vestibule on one side of a new banknote engraving plant in Canada, for instance, has two sets of entry doors —one for those who come in from the rear, where the parking lot is located, and the other for those who approach from the street.

In large plants where employees by the thousands come in through one or two entrances, from which they have to reach locations far and wide under a single roof, the use of distribution tunnels below the manufacturing area is increasing. Passages of that type originated at Boeing's plant in Seattle and are much like those through which individuals, delivered by company bus to the Upjohn plant, reach their posts with a minimum of travel across the production floor. At both plants, locker rooms and most of the toilet facilities are located along the tunnels at points close to each individual department, where stairs lead directly to the production level.

Washrooms

In other large manufacturing plants, where the cost of such passages would not be justified, the accessibility of locker rooms and toilets can be maintained without obstructing production, if they are located either around the perimeter of the structure or up in the trusses.

There is probably no place around the plant where sheer design and the choice of equipment has a greater effect on good housekeeping than in the washroom. In some, continuous mirrors work like magic.

But there are plants where the height of the trusses and site conditions make it necessary that these conveniences be placed in the midst of production areas. There the encroachments can be held to a minimum by development of compact double-deck layouts. There are many distinct advantages in keeping the units small and relatively open. Sometimes the locker and wash-up area is located below the toilets and opens onto the production floor.

We've been talking almost entirely of facilities within manufacturing plants, but I should like to call your attention to the type of central conveniences often erected to serve the more dispersed population at refineries,

chemical plants, railroad shops, mines and steel mills.

U. S. Pipe and Foundry built a sizable structure at its Alabama plant exclusively for use as a change house. The interior has been broken up into four distinct blocks — first, by bisecting the structure with a vestibule, above which the domestic hot water tanks have been installed; and secondly, by locating all of the showers, toilets and lavatories down the middle of the structure, with rows of lockers, at right angles to these facilities, on either side. With rigid frame arches that span the entire area and a monitor which admits light from above it's easy to keep things fresh and clean with mechanical ventilation. Maintenance is simplified by the use of glazed tile throughout all these installations, and the mirrors can be made of stainless steel.

In the locker room at one end of the new service building at Sohio Petroleum's Kentucky refinery, a special underfloor ventilating system has been installed. Fresh air inlets in the concrete bases supporting the 6-ft. lockers and mechanical ventilators in the roof keep the room fresh at all times. The lockers have dividing partitions so that street clothes on one side aren't soiled by contact with work clothes on the other.

Food Service

So far as food service facilities are concerned, the setup can be tailored to fit any pocketbook. There are the alternatives of setting up complete kitchens, including bake ovens and everything else that goes into a first-class restaurant, or the plant can operate with the minimum investment limited to warming tables, serving counter and dishwashing equipment, if it relies on some central commissary.

Whether the problem is approached by establishing a central cafeteria or by a number of small canteens, as we did around the perimeter of a large aircraft plant, the problems are two-fold. The first is one of layout to insure fast service; and the second, one of materials, equipment and decoration, which create the atmosphere.

Recreation

Some plants find it advantageous to provide recreational facilities. They may not be more than a ping-pong table at one end

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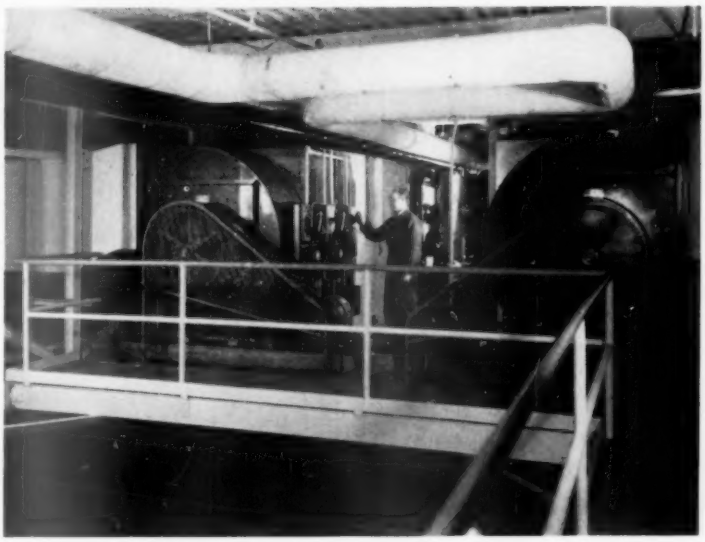
Handling systems have been coordinated in this area where women are employed in winding stators for motors. Continuous belt conveyors which separate the rows of operators carry parts to testing positions at each end of the line, from which they are transferred to special racks and monorails for further processing. The continuous overhead chain conveyor, which operates on a monorail above the protecting basket, delivers stator cores to winding lines.



Air-conditioning equipment serving the F. Ducharne Silk Co. plant in Glen Rock, N. J., was raised into position in the trusses right on the platform which supports it, with a saving in installation costs.

TAMING THE SAW

By L. H. REINEKE

From Europe comes a promising development in woodworking safety. The controlled-cut saw eliminates serious hazards at their source—the blade itself

THE short thumb or the missing finger is a sad badge of the woodworker's trade. Even more tragic is the sightless eye socket or the granite headstone that sometimes results from an accident with a power saw.

Bodily contact with a saw may result in loss of fingers or a hand, but more serious injury or even death, may be caused by projectile-type accidents in which wood pieces are hurled violently by the saw. Studies recently made by the Swiss Accident Insurance Institute indicate the seriousness of this type of accident. Even a careless worker has a cautious respect for the obvious cutting power of a saw, but few fully appreciate the possibility of violent and unpredictable kickbacks.

As part of its program of saw development and studies of saw operations, the Forest Products Laboratory has made tests of the safety of operation of a new type of saw. In these tests the saw was subjected to materials and operating procedures most productive of kickbacks.

The most serious of these kickbacks occurs in the edging of boards, usually short ones somewhat longer than twice the distance from the front of the saw to the back of the table. At the instant the edging is finally severed, the overhang beyond the table causes the front end of the edging to rise. If the front end swings in toward the saw, it may be caught by the teeth and "javelined" forward with enough force to pierce a body completely, usually in the zone of vital organs.

The next most important type of kickback occurs during repeat ripping, in which a piece of wide stock is ripped into three or more pieces. In bringing the stock back over the saw for the next cut, the back end of the piece may be dropped enough to be hooked by the saw. The piece may be hurled forward with either a spear-like or a tumbling motion, depending on the length of piece and position at the moment of contact with the saw.

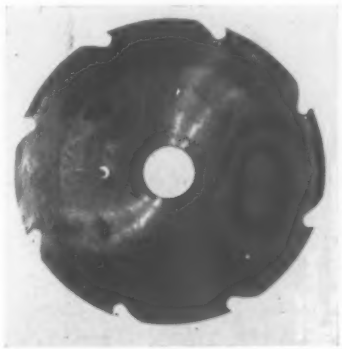
A third type of kickback occurs in ripping short pieces not much longer than the chord of the exposed segment of the saw. Normally, the stock is simultaneously fed and held against the

Controlled cut safety saw installed on a chain-feed rip saw. This saw will cross-cut lumber without risk to the operator. (Photos by Gamble Bros., Inc.)

L. H. REINEKE is Technologist, Forest Products Laboratory, U. S. Department of Agriculture. The Laboratory is maintained at Madison, Wis., in cooperation with the University of Wisconsin.

fence by a diagonal pressure applied at the outer corner. At the instant the cut is completed, this diagonal pressure tends to swing the further end of the outer piece into the back of the saw, where the rising teeth may lift the stick and throw it forward, with an additional chance that the hand may strike the blade as the piece suddenly jumps.

Fourth most frequent among accidents not involving direct contact with the saw are those resulting from small loose pieces (end trimmings) being caught by

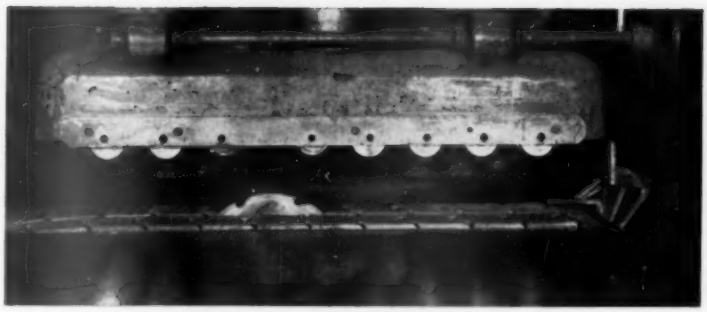


Controlled cut safety saw. This saw was operated 2039 hours sawing hard maple and oak without resharpening.

the rising side of the saw and thrown upward and forward, resulting mostly in eye and other face injuries.

Pinching is another cause of kickbacks, but is readily prevented by the use of a splitter. A splitter is useless with the opposite action, spreading, which may cause serious kickbacks by crowding the stock between saw and fence against the saw so that the rising teeth at the back lift the piece and throw it forward. This action is induced by the long fences common on American saws. Such fences are prohibited in Switzerland, where the short fence used, extending only one or two inches beyond the cutting point, permits the stock to spread without crowding against the saw.

Modern bench saws are supplied with fairly effective safeguards, such as splitters, saw hoods, and



Chain-feed rip saw with controlled cut safety saw.

kickback dogs, to protect the user from kickbacks and bodily contact with the speeding blade. Only gross negligence will cause serious accidents when those safety devices are in position, but certain operations may require their removal or be less convenient with them in place. Removal of safety devices, whether through necessity or willful disregard of safety in favor of greater convenience, exposes the operator to a tool that can be diabolically sudden in committing mayhem at either close or long range.

Since exposure is sometimes necessary, but most often willful, bettering the protective devices is futile, and the most logical countermeasure is to tame the danger source, the saw blade itself. Such is the solution to saw safety problems offered by a type of circular saw new in this country.

Radical New Design

This new type of saw, on which patent coverage has been or is being obtained in this and many foreign countries, was invented in Germany and is being made by a saw manufacturer in Switzerland. These saws are now available in this country.

The design feature that makes the saw so much safer than the ordinary saw is the back of the tooth, which limits the maximum cut per tooth. An unusually small number of teeth is used, thus giving greater rigidity to the blade.

One feature of the controlled-cut type of saw is that stock can be fed to the rising side of the saw without having it whipped from the hands. The lifting effort of the teeth is limited because very few teeth are in the cut, the cut per tooth is light, and self-feeding or drawing of the stock into the saw is limited to the rate established by the tooth design. Even though the saw may not be perfectly fitted, and the stock permitted to leave the hand, the speed imparted to the piece would be very slight, and not at all dangerous. A spring hold-down attached to the fence or splitter would be enough to prevent runaway in feeding with the saw instead of against it as normally done.

Feeding with the saw would have a number of advantages from the standpoint of safety. In case of body contact the rising teeth would tend to throw the part away from the saw, rather than drawing it into the saw. The edgings, blocks, or other pieces that travel toward the sawyer in normal kickbacks will travel away from the sawyer. Sawdust will also be thrown away from the sawyer, but a suction pickup above the table will be needed. Any pinching that develops will occur at the back edge where the travel of the teeth is downward, holding the stock against the table and permitting the saw to relieve the pinch.

To retain the original safety of operation, accuracy in resharpening is necessary, and a true arbor and collars will prevent cancellation of the gains in safety derived from design and accurate fitting. Hand filing, of course, is unde-

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Discusses

OFF-THE-JOB SAFETY

THE QUESTION:

In what ways can industry help in the prevention of off-the-job accidents?

THE PARTICIPANTS:

C. M. ALLEN, staff supervisor of safety, Armco Steel Corp., Middletown, Ohio.

W. F. BROWN, safety director, Consolidated Edison Company of New York, Inc., New York.

W. GRAHAM COLE, assistant secretary, Metropolitan Life Insurance Company, New York.

R. M. CORLL, manager of industrial relations, Weirton Steel Company, Weirton, W. Va.

GEORGE A. JACOBY, director of personnel services, General Motors Corp., Detroit, Mich.; vice-president, National Safety Council.

C. M. KIMBALL, assistant to vice-president, Southern Railway System, Washington, D. C.

G. P. MASEK, Health Promotion, Safety and Training Department, Western Electric Company, Kearny, N. J.

ERLE S. MINER, engineer, American Telephone & Telegraph Company, New York.

G. A. RILEY, supervisor of safety, American Brake Shoe Company, New York.

HERSCHEL L. SMITH, safety engineer, General Electric Co., Fort Wayne, Ind.

SUMMARY:

That industry is gravely concerned about off-the-job accidents involving employees and their families has long been evident. Many companies have reported much greater loss of time from these accidents than from those occurring on the job.

A heavy volume of requests for material on the prevention of off-the-job accidents is received annually by the National Safety Council. Many employee publications are solidly behind the program with effective messages in words and pictures.

In this month's panel, ten members representing varied fields of activity describe methods used in promoting safety off the job for employees and their families. Pamphlets, posters and employee publications are widely used media. Many hold meetings at the plant and some arrange special programs after hours to which employees' families and guests are invited.

Two participants testified to the value of first aid training.

The importance of company participation in community safety programs through local safety organizations was repeatedly emphasized.

MR. ALLEN:

Off-the-job accidents are a major problem to any industry, and industry is very much concerned about the problem.

One of our largest operations is located in a community of 40,000 population. During 1949, the plant had 22 on-the-job accidents, none of which were fatal. The frequency was 2.39 and the severity 0.46. During this same period, the employees experienced 47 off-the-job accidents, 6 of which were fatal. An analysis of the off-the-job cases reveals that 19 involved motor vehicles; 3 farm machinery; 5 falls; 12 miscellaneous causes; 1 firearms; 1 sports; 1 gasoline; 1 electricity (6600 volts); 1 fight; and 3 repairing machinery.

The community hospital records for a period of 3 months show that 176 cases were treated for auto injuries; 296 home injuries; 17 school injuries; 38 parks and playgrounds; and 41 classified as

public injuries. In addition to these cases, there were 5 traffic deaths and 1 home death.

Our community is not ignoring the problem. We have a local safety council, with a full-time managing director. Its board of control is made up of the leaders in the community, the newspaper, radio station, public officials, business and professional organizations, school officials, and industry. All are working together as a team.

Industry cannot afford off-the-job accidents. It costs money when experienced employees have to be replaced. It also costs money to maintain hospital care, group life insurance, surgical care and sickness insurance, and death and accident plans. It also costs money to expand community hospitals. Industry is always a major contributor in these expansion programs.

Industry can help in these ways:

1. Make off-the-job accidents a part of the plants' regular safety program.

2. Keep complete records on all off-the-job accidents and attack the problem in the same way that we attack the on-the-job accidents.

3. Cooperate fully with the local safety council and public officials on all community safety problems.

4. Drive home to all employees that the community hospital has ample beds for taking care of sickness and emergency health cases, but that they will never have sufficient beds to take care of the accident cases unless the accident trend is reduced.

MR. BROWN:

First, it is essential to determine the *what*, *where*, *when*, *why* and *how* of off-the-job accidents. This requires some systematic method of reporting, tabulating and classifying these accidents similar to the methods used in handling occupational accidents.

In Con Edison, off-the-job safety is a year round topic at safety committee meetings. Posters are selected with this problem in mind. The monthly *Safety News and Comments* always features off-the-job hazards and suggestions on overcoming them. Special articles on home and vacation safety are published in our company magazine, *Around the System*, which goes into all employees' homes.

Statistics on off-the-job accidents, including fatalities, are prepared annually and semi-annually. Perhaps the most effective means of safety motivation is the National Safety Council calendar which is mailed to employees' homes on request.

More effort can be and should be made by industrial concerns to pass on to employees lessons from experience in accident prevention. This can be a tremendous influence for good in industrial relations.

THE INDUSTRIAL SAFETY PANEL is an informal group representing various branches of industry. Each month part of its membership answers some question relating to accident prevention principles and methods. The Panel is conducted by mail and participants have no opportunity to compare notes.

The Panel includes personal views as well as expressions of company policy.

The limited sample of experience and opinion presented in the Panel inevitably leaves some angles of the subject uncovered. Comments of readers will be welcomed for publication by the editors, also suggested topics for future discussion.

MR. COLE:

Any type or size of organization may carry out an effective off-the-job safety program. This is one of the conclusions arrived at from a review of a recent study of the activities of industrial firms which have carried on programs to prevent accidents to employees while they are away from work. It is realized, of course, that the type of organization and the policies of management will determine the procedure best suited to a specific safety program.

The following are considered essential for creating and maintaining a program:

1. The interest and approval of management and the designation of a department or an individual who is to be responsible for the off-the-job safety activities.

2. The assembling of information and statistical data on the subject by the designated department or individual for the purpose of determining the activities necessary to combat the problem. Small and large organizations have developed forms and methods for effectively obtaining such information.

3. The preparation of regular reports and the submission of them to all parties concerned.

4. A continued comparison of the cost of off-the-job and on-the-job accident experience. This type of information is desirable for the purpose of showing the effect of the off-the-job accident.

5. The conduct of special educational campaigns on the subject. A study of the activities being conducted by other industrial organizations, safety councils, and other safety-minded units may be used as a basis for a plant program.

6. A continuous program to maintain the interest of employees in safety off the job. This includes selection of proper materials and the adoption of a regular schedule which will adequately cover all phases of safety.

7. Cooperation with local industrial companies

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Testing Scaffold Planks

By W. ELWOOD ROSSNAGEL

THERE has long been a wide difference of opinion as to the desirability of testing scaffold planks before placing them in use. One school of thought believes that it is absolutely necessary to test all planks in order to insure against using a defective one. The other believes that a visual inspection is sufficient, and that testing has little or no value. It is their opinion that there is a greater probability of damaging a good plank during the test than of detecting a weak plank.

Both viewpoints have their merits. Nevertheless, I believe that it is safer to prohibit all load-testing of planks than to permit indiscriminate testing, thus placing full reliance on visual inspection. On the other hand, if a load test is scientifically conducted it should satisfy both the pro- and the anti-testers.

If upon completion of the visual inspection there is still some uncertainty as to the strength of the plank, it may then be desirable to make a load test.

The logical time for the inspection of planks is at the time of purchase. We have a definite procedure in our company governing the purchase and distribution of scaffold planks.

When a production department or the Station Construction and Shops Department requisition a certain number of scaffold planks, the Purchasing Department sends the requisition to the Insurance Department for approval as is done in the case of all items in which safety and fire protection are factors. In the case of scaffold planks the Engineering Department has prepared specifications which have been approved in the Insurance Department and adopted by the Purchasing Department for the purchase of planks.

The specifications covering the planks are sent to various concerns for bids on a large number at a time. Under normal conditions, about 500 scaffold planks are purchased per month, but recently 2,500 were purchased in two months. It is understood that the vendor will admit the company inspector to his yard.

The lumber inspector from the Traffic and Inspection Division of the Purchasing Department selects the number of scaffold planks specified in the order. He handles each plank, inspecting both faces, both edges and both ends to make certain that the defects do not exceed the sizes or number allowed by the purchase specification.

Visual Inspection

In this visual inspection a number of things are checked. To begin with, it is assumed that loads will be applied to either the wide or the narrow faces of the planks when used as beams. The planks must have a strength ratio of at least 80 per cent. In other words, the strength of the planks with all their inherent defects shall not be less than 80 per cent of the strength of a theoretically perfect plank.

Species and grade—Most of our scaffold planks are made of Eastern Spruce, but sometimes one of the following species are used: Sitka Spruce, Longleaf Yellow Pine, Shortleaf Yellow Pine and Douglas Fir.

Dimensions — Most planks are furnished in rather odd dimensions, 2″x9″x13′-0″.

Quality of wood—All planks should be properly seasoned and free from crook, bow, cup or twist warping. Boxed heart material is not accepted nor are pieces of wood exceptionally light in weight for its species. Brashy wood should not be accepted.

Defects—The slope of the grain, either diagonal or spiral, within the middle half of the length of

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the plank must not deviate from a line parallel with the edges of the plank more than one unit in a length of seventeen units (1:17), as indicated by resin ducts, by splinters pulled from the faces of the plank or by an ink test. Elsewhere the slope must not exceed 1:12. Local cross grain caused by knots, etc., shall not exceed 1:12 if within ½″ of any edge and within the middle half of the length of any face shall not exceed 4½ times the size of the largest knot allowed in that area.

Checks must not exceed ⅝″ in depth.

Splits extending more than 3″ from either end of a plank are not permitted.

Shakes, as observed upon the ends of a plank, within the middle half of the wide face must not exceed ⅝″ measured between lines parallel with the wide faces and just enclosing the shake. Shakes shall not appear upon the faces of a plank. If shakes and checks are both present, the sum of their sizes at any point must not exceed ⅝″.

Compression wood is not permitted.

Planks containing, or suspected of containing, compression failures are not accepted. Neither are planks containing evidence of other injury.

Pitch pockets and bare pockets are permitted, provided they do not exceed 2″ long, ⅛″ wide or ½″ deep, and provided they do not occur less than four feet apart.

Planks containing pitch streaks of exceptionally large areas are not accepted.

Knot holes, and holes from other causes, are limited as are knots, except that holes must not exceed 1″ in the minor diameter.

Testing

If the plank passes the visual inspection, but there is still some uncertainty as to its strength, choose a smooth level floor which presents a plane surface to make the test.

Place the plank so that both ends bear for 6″ on wood blocks

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The SAFETY VALVE

Poor Timing

WHEN our Statistics Division asked for help in persuading people to say "disabling injuries" instead of "lost-time accidents," the *Safety Valve* was glad to oblige.

And after sticking my neck out for this good cause in the May issue, just imagine how I felt when this letter arrived:

"I read with interest your article, 'A Matter of Words,' in the May issue. I agree and I have almost succeeded in eliminating the term 'lost-time accident' at our plant.

"Lo and behold, on page 105 we find a miniature of Poster No. 8286A. Our foremen and unit safety supervisors look over the NEWS and indicate the posters they want. When they see a poster like that one, they ask: 'Why do you insist on calling them disabling injuries when the National Safety Council and every one else calls them lost-time accidents?'

"As a matter of fact, one unit has a scoreboard reading:

"No. of days without a lost-time accident.....

"No. of days without a disabling injury.....

"We insisted on the second line and they insisted on the first, and the number of days usually varies for each category. It's very confusing to the rank and file."

When this letter was referred to Poster Committee, they were slightly embarrassed, too. They had discussed the problem in advance and it was argued that the boys in the shop still called them "lost-time accidents." Therefore, the poster would be more widely used if they stuck to the old term.

Right or wrong, that's the explanation. But apparently it was the wrong time to beat the drum for reform.

And to add to the confusion and frustration, Bill Andrews has used the obsolete term in this month's "Diary of a Safety Engineer."

Requiem for An Old Church

Many a person passing through Park Ridge, Illinois, has noticed a quaint red brick church on a triangle of land just south of the railroad station. It captured the imagination of numerous young couples who were married there because it looks romantic.

With a background of Congregationalism transplanted from New England it became a community church where people of varied beliefs found common ground.

Times were not easy when it was built. Money was scarce in the depression years of the seventies and many of the contributions were the labor of members. And mention must be made of the women who carried on the Lord's work—feeding the men folk at sociables and raising money.

In three quarters of a century the old church saw the community grow from a village to an important suburb of a great city. It was no longer adequate to serve its growing congregation. Age was weakening its foundations.

So this spring, when the honeysuckles surrounding the venerable house were in bloom, the wreckers started to remove this beloved landmark. In its place will arise a new sanctuary of red brick with white pillared portico and lofty spire.

Physically, the old church and those who built it are gone, yet both will live on in the new structure.

Carman Fish

A spring catch of snakes in the South Dakota hills. The long, slender reptiles among the rattlers are harmless varieties.

Snakes used to be a menace

By J. J. VEATCH

Control measures at the Fort Randall Dam have prevented bites and reduced the reptile population but precautions have not been relaxed

HIGH, cactus-covered buttes, deep coulees and exposed Niobrara chalk bluffs make the site of the Fort Randall Dam a natural habitat for the prairie rattler. Control of these menaces was one of the first safety measures on the project.

Located on the Missouri River some seven miles south of Lake Andes, South Dakota, Fort Randall Dam is near the historic military post established in 1856. It is a perfect location for the multipurpose reservoir project being constructed by the Corps of Engineers, Omaha District.

The urgent need for measures to combat the rattlesnake hazard was brought to light when core drill crews were assigned to carry on sub-surface exploration during the fall of 1945. The first step was to contact Mr. A. M. Jackley, supervisor of reptile control for the State of South Dakota. A wealth of information was obtained from Mr. Jackley who has extensive first-hand knowledge of the behavior of rattlesnakes found in this region.

Supervisors in charge of the work, together with safety engineering personnel, held meetings with all drill crews, pointing out possible locations of snake-infested areas and precautionary measures to be taken. They were thoroughly briefed in identification of rattlesnakes, their habits and behavior. They were instructed to disregard the old theory that a rattlesnake is a gentleman and will always rattle before he strikes. According to Mr. Jackley, some will rattle before they strike, some will strike and rattle at the same time, while others will strike and rattle afterwards.

Each crew was furnished with a snakebite kit and was schooled in first-aid treatment, including proper transportation of the victim. Instructions were also given regarding protective clothing to be worn, such as high-top leather boots and heavy leather gloves, also that every precaution should be taken while climbing steep hills or rock ledges to insure that no snakes were in striking distance. A copy of an article written by Mr. Jackley titled "Traits and Behavior of Rattlesnakes" was furnished each employee. Crew members were instructed to inform their supervisor regarding the location of any snake dens found in, or adjacent to, the working area, in order that traps could be set the following spring. Although many snakes were seen, and a few dens were spotted, no difficulty was experienced during the remainder of the working season.

In March 1946, Mr. G. O. Evans, Area Engineer, had several snake traps built according to specifications furnished by Mr. Jackley. The traps were set over the dens which had been located during the previous working season. These traps consisted of two boxes, one approximately 2′ square, with the top covered with screen wire, and one approximately 2′ x 3′ x 2′, provided with a wooden or screen-wire floor and wooden frame, with the sides and top covered with screenwire. The small box is placed directly over the den opening during cold weather and prior to the time that snakes begin to come out of hibernation. The larger box is located next to, and slightly above, the smaller box, with a screened-in, board ramp connecting the two boxes. In the center of the board ramp is a small piece of mica which acts as a hinged door, with

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the end just inside the large box resting on the board.

When the snakes come out of hibernation in the spring, they first enter the small box and after becoming accustomed to the warm sun they find that the only way to get out of the small box is by going over the ramp. When their heads strike the semi-transparent piece of mica it raises up, allowing them to enter the large box or pen. After a snake passes over the ramp the piece of mica drops down, thereby blocking the only means of escape. The accompanying photos were taken by Mr. Jackley near Chamberlain, South Dakota, 100 miles west of Fort Randall.

Although a number of snakes were trapped in this manner, the traps were not entirely effective due to the porous condition of the exposed chalk ledges which allowed many avenues of escape from the dens.

In the spring of 1946, construction of the town near the Dam Site got under way, as well as the construction of the east access road and railroad. A number of the temporary houses were being constructed adjacent to a large coulee, which was known to be snake-infested. The first step taken prior to construction was to cut, rake and burn all vegetation in the construction area, in order that snakes could be readily seen out in the open. Meetings were held, at which the hazards of snakebite were discussed, and printed matter pertaining to this subject was given full distribution, particular emphasis being given to the hazards of handling material which had been stored for any length of time and which might provide a desirable place for snakes to hide.

The Corps of Engineers also provided an ambulance for quick transportation of anyone bitten. Approximately one hundred rattlers were killed in the town site area during the working season, while only a few were killed on the highway and railroad projects. This, however, was expected since the majority of the work on these two projects was away from the rough terrain near the river.

Protecting the Children

During the winter of 1946 and 1947 the Stage One Housing in the town site was completed and was occupied by government employees and their families.

In the spring it was soon learned that the exposure to snakebite would be greatly increased during the coming working season. This was not due entirely to the rapidly expanding construction activities within the area, but also because the children living in the town site, having been confined during the long winter months, had an uncontrollable urge to explore the deep, grass-covered coulees and the bleached chalk bluffs along the river.

Meetings were held with families living in the town site, and the hazards of snakebite were discussed. They were briefed in the location of snake-infested areas and requested to closely supervise the activities of the children outside their homes. Hand bills were printed and distributed to each family, setting forth information regarding identification of rattlesnakes, their habits and behavior, first-aid treatment, etc., and the families were again admonished regarding the importance of controlling the activities of their children. These hand bills also contained instructions to notify Mr. T. V. Halloran, Town Manager, or Mr. R. L. Fitzhugh, Area Safety Engineer, whenever a rattlesnake was spotted.

The foregoing instructions were initiated during the early spring and prior to the time that snakes come out of hibernation. A few families voiced a slight resentment to the apparent restrictions being placed on their normal family life, and they also felt that the Corps of Engineers was unduly alarmed over the rattlesnake problem. This passive resistance, however, came to an abrupt end with the first appearance of a large "rattler" calmly sunning himself on a warm sidewalk in the housing area. Children no longer roamed the hills and coulees; fences were placed around yards; grass (what little there was) was cut close to the ground; mothers, wearing their husbands' rubber boots and armed with every known kind of weapon, carefully inspected the yards and playgrounds before children were turned out to play. One afternoon bridge club could not disband until help was summoned to kill two large rattlers, one of which was stretched out on the front sidewalk, and the other coiled near the back door.

During this working season

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When spring brought this prairie rattlesnake out of his den, he crawled right into a trap. A hinged mica door which lets in light provides the only exit from the den and it's a one-way thoroughfare.

PRESS BRAKES

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This Data Sheet is one of a series published by National Safety Council. It is a compilation of experience from many sources. It should not be assumed that it includes every acceptable procedure in its field. It must not be confused with American Standard Safety codes; federal laws; insurance requirements; state laws, rules and regulations; and municipal ordinances. Reprints of all Data Sheets are obtainable from National Safety Council.

1. The press brake, also known as a bending brake, power brake, or bending press, is a development of the hand folder or hand brake and is considered one of the most difficult industrial machines to guard effectively because of the variety of work it performs.

2. The primary function of the press brake is the cold forming of angles, channels, etc., in plate, strip, or sheet metal stock. However, it is frequently used for punching, trimming, embossing, corrugating, notching, and other typical power press operations as well.

3. The principal hazards of press brakes are:

a. Fingers or hands may be crushed between the punch and the die, or between the work being bent and the ram.
b. Cuts may result from contact with stock being processed.
c. Injuries may be incurred from handling punches and dies.
d. Men may come in contact with moving machine parts.

4. The press brake is always equipped with a disc friction clutch which permits the ram to be stopped at any point in the operation cycle. When material extends toward the front of the machine, or overhangs it, this clutch enables the operator to control the unformed portion during and immediately after the operation. It also permits the ram to be positioned close to the stock before the final driving force is applied.

5. The fact that many heavy punch presses are also equipped with disc clutches results in considerable confusion in differentiating between press brake and punch press operations.* The essential difference is that the punch press

* This data sheet will be restricted to a discussion of press brake operations. Reference is made to Data Sheets D-Me. 27, "Individual Die Guards and Adjustable Press Barriers;" D-Me. 18, "Power Press Maintenance," and D-Me. 16, "Setting Up and Removing Power Press Dies," for information on the guarding and safe operation of punch presses.

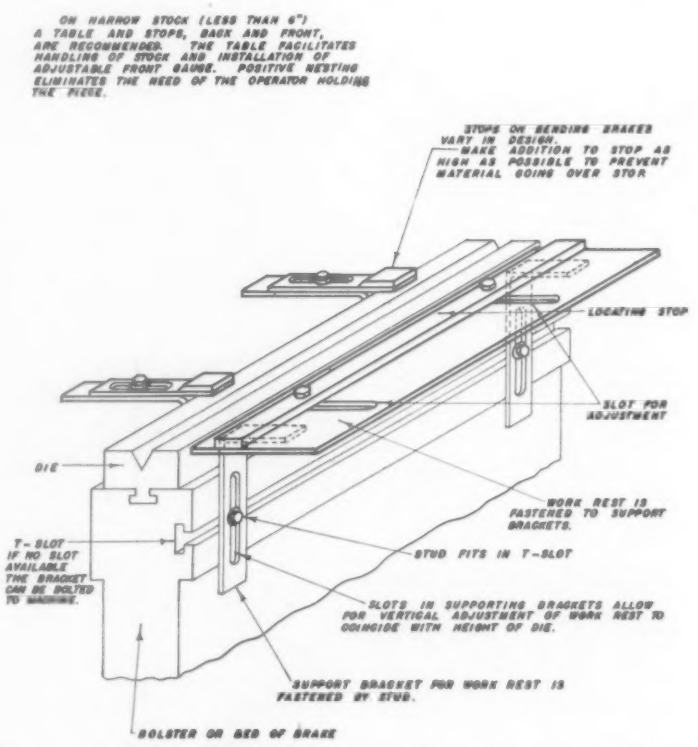
ON NARROW STOCK (LESS THAN 6") A TABLE AND STOPS, BACK AND FRONT, ARE RECOMMENDED. THE TABLE FACILITATES HANDLING OF STOCK AND INSTALLATION OF ADJUSTABLE FRONT GAUGE. POSITIVE RESTING ELIMINATES THE NEED OF THE OPERATOR HOLDING THE PIECE.
STOPS ON BENDING BRAKES VARY IN DESIGN. MAKE ADDITION TO STOP AS HIGH AS POSSIBLE TO PREVENT MATERIAL GOING OVER STOP
LOCATING STOP
SLOT FOR ADJUSTMENT
DIE
WORK REST IS FASTENED TO SUPPORT BRACKETS.
T-SLOT IF NO SLOT AVAILABLE THE BRACKET CAN BE BOLTED TO
STUD FITS IN T-SLOT
SLOTS IN SUPPORTING BRACKETS ALLOW FOR VERTICAL ADJUSTMENT OF WORK REST TO COINCIDE WITH HEIGHT OF DIE.
SUPPORT BRACKET FOR WORK REST IS FASTENED BY STUD.
BOLSTER OR BED OF BRAKE

Figure 1. Improved locating stops and adjustable work rest for press brakes. (Courtesy Liberty Mutual Insurance Company)

strikes a quick, sharp blow, partly because of accumulated momentum in the flywheel, whereas the press brake gives a slow, steady application of force.

6. Also, the press brake is designed to use rail or "V" dies so that various angle bends may be obtained. The punch press, on the other hand, uses a great variety of dies designed for forming, punching, notching, coining, and other common operations.

7. The press brake has an open back so that a part which will pass between the columns can be formed at any distance from the end of the stock. Gauging stops and work supports may be attached to the bed of the press by means of bolts and clamps. (See Figure 1.) Stock to be processed is placed against the gauges so that it will be properly aligned before the operation is performed.

Figure 2. This press brake treadle stop was designed to prevent accidental operation of the brake after the electric supply to the motor has been shut off. A stop pin protrudes and retracts through the wall of the brake. The pin is energized by the solenoid which is connected directly across the "load" side of the magnetic starter controlling the brake and is energized or de-energized simultaneously with the motor so that the stop pin will prevent operation of the brake immediately after the operator depresses the STOP button. For complete details and wiring diagrams, write the National Safety Council for Detail Sheet 56, "Power Brake Treadle Stop." (Courtesy North American Aviation, Inc.)

8. When the stock being worked is narrow, the operator's hands frequently are near the path followed by the ram. Several provisions are necessary to reduce this hazard:

a. The machine should be equipped with mechanical safeguards maintained in the best working condition.

b. The operator should be well instructed.

c. Thorough periodic checks of the entire machine should be made to assure that all parts are in good working condition.

d. Worn punches and dies should be retooled or discarded; use of worn tools throws excessive strain on the press.

Safeguards

9. Press brakes are equipped with control panels through which control circuits may be connected to meet each job's requirements. Arrangement of the controls is a part of the machine setup routine and only authorized persons should be permitted to make changes. At all other times the panel should be locked.

10. Press brakes should be provided with starting devices which will keep the operator's hands out from under the ram. Such devices include two-hand switches or levers, as well as treadle bars, foot pedals, and foot switches.

11. If two-hand switches or levers are used, relays or interlocks should be installed so that it will be impossible to render one of the switches or levers inoperative and thus permit the brake to be controlled with one hand.

12. Some presses are also equipped with a supplementary control switch which under continuous pressure permits a downward jogging of the ram in intermittent short steps (inching). This control is used to facilitate the machine setup, and operates through a timing device which may be set to limit the intermittent drops. Operators should be instructed that this control is to be used for setup operations only and *should not be used in producing parts.*

PRESS BRAKE OPERATION

1. Be sure you know how to operate your machine. Keep it well lubricated, and report defects to your supervisor immediately.
2. Keep your hands from beneath the ram.
3. Do not attempt to catch trimmings after the brake has been tripped and before the cut is finished.
4. Never attempt to adjust the position of stock once the ram is set in motion.
5. In changing tools, carefully follow the recommendations of the manufacturer.
6. Shut off the power when you leave the machine, before it is cleaned or lubricated, and before adjustments are made.
7. Keep wiping cloths, oil cans, wrenches and other tools in a safe place—never on or about the machine.

Remember: Horseplay and talking to an operator while his brake is running can lead to accidents.

SAFETY INSTRUCTION CARD **No. 777**
National Safety Council PRINTED IN U.S.A.

Figure 3. This National Safety Council Safety Instruction Card can be given to operators on the job or at safety meetings, to remind them of safe practices.

13. A "reverse" control is provided on the starting switch for use when tools become frozen. This control should not be used until the flywheel comes to a complete stop.

14. Multiple operations with a single stroke of the press which employ more than one die frequently require the attention of more than one operator. In this case, precautions should be taken to prevent press action without the direct consent of each man. All control switches should be connected in series (through the control panel) so that they must be depressed simultaneously by all the men.

15. Press brakes should be provided with foot controls for use on

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Gases Under Pressure

By E. M. KLOEBLEN

Safety relief devices of several types make possible safe handling and transportation of compressed gas containers

THE safety valve on a steam boiler is designed to protect the boiler against over-pressure. The excessive pressure is usually caused by excessive generation of steam in relation to the withdrawal rate of steam from the boiler. The storage tank on an air compressor is likewise protected against excessive pressure caused by too high a compressor discharge in relation to the rate of withdrawal from the storage tank. In each of these cases, it is most common to employ spring-loaded relief valves and to operate the vessels at a pressure near the safety valve setting with occasional popping of the valve. This occasional release of steam or compressed air need not be dangerous or costly.

The term "safety device" is a very broad one. I propose to discuss only those devices intended to vent a container automatically to prevent its rupture under certain conditions. The term "safety relief device" is perhaps more fitting. The devices under consideration include the common spring-loaded relief valve, the frangible disk, the fusible metal plug, and the frangible disk backed with fusible metal.

My remarks concern the safety relief devices used on compressed gas containers, especially where such containers are used in transportation after being disconnected from their source of pressure. Any increase in contained energy, and resulting increase in pressure, would come from some accidental circumstance, usually a fire, which would introduce energy in the form of heat.

Probably the most common compressed gas container is the portable I.C.C. cylinder, more recently christened "container." The maximum size of this I.C.C. container is 1,000 lb. water capacity. The types and sizes of the safety relief devices used on these containers are specified for the different gases in the current Safety Device Schedule of the Compressed Gas Association. This schedule has been used by the Bureau of Explosives as a guide for their approval of safety relief devices on these containers, although basically their approvals are granted on the basis of actual performance in a fire test.

For more than a year now a committee has been at work revising this schedule which has been standard since 1936. The complexity of the work is obvious when one considers that the containers vary in size from less than one pound water capacity to 1,000. Pressure varies from less than 100 psi at normal temperature to over 2,000 psi. Properties of the gases also vary widely.

Not all I.C.C. containers are fitted with safety relief devices. Certain containers of small size or low pressure are not required to be so equipped because the magnitude of potential energy release is not great. Poison gas containers are not permitted to be shipped with such devices. It is obviously sound judgment to prohibit safety relief devices on these poison gas containers. It is generally accepted that the situation resulting from the possible discharge of poison gas due to leakage, or premature or needless functioning of a safety relief device, would hold more potential danger than any added damage and casualties caused by an explosion under the rare fire conditions severe enough to cause the rupture of the container.

Types of Safety Relief Devices

The *spring-loaded safety relief valve* is usually an integral part of the container valve. These relief valves have soft seats, and springs which are set by the valve manufacturer at the proper pressure setting, and sealed to minimize tampering.

The *frangible disk* is also commonly installed in the valve with a threaded plug or cap containing the shearing edge and suitable discharge channels. The disk may be flat, preformed, or reinforced. The flat and preformed disks rupture either in tension, or a combination of tension and shear, depending upon the material of the disk, its shape, and the radius of the shearing edge. The reinforced frangible disk fails in shear, causing the reinforced portion to separate from its flange and be projected into a pocket, clearing the discharge channel.

The *fusible metal plug* is used in a number of ways. On the smaller cylinders, the fusible metal is often cast into an opening in the valve body. When larger discharge areas are necessary, the

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E. M. KLOEBLEN is associated with the Linde Air Products Company. This article has been adapted from a paper presented before the Annual Meeting of the Compressed Gas Association.

fusible metal is poured into a threaded plug and the plug is fitted into the container heads, or bottoms, or both. When the fusible metal attains fusion temperature, the discharge channel is cleared by the gas in the container. The frangible disk, backed with fusible metal, is usually installed in the valve. This combination device utilizes a plain frangible disk, either flat or preformed, resting against a shearing edge of a threaded plug or cap containing the discharge channel, and the channel is filled with the fusible metal. Upon fusion of the fusible metal due to temperature, the disk is free to rupture by the pressure generated in the container.

We can divide the devices now approved for I.C.C. containers into three classes. First, the thermally-operated; second, the pressure-operated; and finally, the combination device which requires both a minimum temperature and pressure.

The *thermally-operated device* is the well-known fuse plug which functions either in the range 157° to 170° or 208° to 220° Fahrenheit. The lower melting plug, usually called the 165° fusible metal plug, is used on containers for low-pressure liquefied gases such as chlorine, sulphur dioxide, and the liquefied petroleum gases. It is intended to release the contents before the pressure, generated within a container in a fire, ruptures the container. The higher melting plug usually known as the 212° fusible metal plug is used on acetylene cylinders. Both the 165° and the 212° fusible metal plugs are approved for use on the non-liquefied gases and are commonly used as an integral part of the valve on small high pressure medical gas cylinders. However, the low strength of the fusible metal precludes its use for large high-pressure containers where larger discharge channels are required.

The reinforced fusible plug consisting of a hard metal core surrounded by the 165° fusible metal is a third type of thermal device used generally as an integral part of the valve with oxygen and other medical gases in small cylinders.

The *pressure-operated devices* include the frangible disk, reinforced frangible disk, and the spring-loaded safety relief valve. Set to release at not over the minimum test pressure of the container, these devices directly protect the container against over-pressure. The frangible disk and reinforced frangible disk are one-time devices; that is, when they function, they are destroyed and afford an opening that vents the contents of the container to atmospheric pressure. Such disks are the only devices permitted on liquefied carbon dioxide and nitrous oxide. These two gases have very similar characteristics as far as the safety device picture is concerned. Each has critical temperature in the atmospheric range, and critical pressure just above 1,000 psi. In each case the pressure rise is rapid with increase in temperature. The test pressure of the container is reached when the temperature of the contents is in the region of 160° Fahrenheit. Since the pressure in the container at normal temperatures is not much more than 1,000 psi, a plain frangible disk does a satisfactory job and is most commonly used.

For the higher pressure gases, such as oxygen, nitrogen, and argon, the flat rupture disk has not proved entirely satisfactory, since the normal pressure in the container is too close to the rupture pressure of the disk, causing fatigue. The reinforced frangible disk does a good job here since it is not as subject to fatigue at normal pressures.

The spring-loaded safety relief valve is used most commonly on liquefied petroleum gas cylinders.

The third and final class of device, *the combination frangible disk* backed with fusible metal, is a device commonly used on containers for a number of different gases, usually at high pressure, such as oxygen, hydrogen, and nitrogen, where 212° fusible metal is used to back up the disk. The combination device is permitted

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(Fiction)

FRUSTRATION AND HOKUM

By BILL ANDREWS

2:00 A.M. July 1, 1950.

Sue is probably waiting up for me at the cottage on the lake, wondering what has delayed me, worrying that I may have had an accident on the road.

There's no real reason why I shouldn't shove my work aside, go up to the lake, sleep, have a swim, get sunburned, drink some beer and play with the baby. I could pick the problem up Monday when I'm what is laughingly known as "rested."

But I'm still here. The scrubwomen have gone. The nightwatchman looks in every hour, and the flowers in the vase on my secretary's desk are wilted.

There's nothing noble about this stretch of overtime work. I only want to get the bitter taste of defeat out of my mouth. I've got to know, if I'm going to sleep this week end, that there is something I can do which may put a stop to the run of accidents we've been having.

There have been five lost-time cases in three weeks, two of them fairly serious. One fracture case is in a traction splint up at Mercy Hospital, probably not sleeping tonight, either. And little Sarah Bergen from power press is at home wondering whether anything can repair her damaged scalp.

June was the worst month for frequency since I've been with Jackson-Barnes. And lying on my desk blotter is a gleaming advance copy of the pamphlet ballyhooing the company and containing the boss's brag that we will reduce accidents 20 per cent in the next year.

Sometimes the very tools of our trade seem to mock us. I've got Jack Bell's beautiful file of accident reports and his draft analysis for June—but it doesn't tell me why Sarah tore her scalp. Sure, it says, "Failed to wear prescribed cap when working near moving machinery." But why didn't she wear the cap on June 19 at 9:53 a.m.? And why, after 16 years without an accident, did Mike Callahan sprain his wrist lifting a box lighter than 10,000 other boxes he's lifted?

I've a bright and shiny new tape recorder in the office. We've made some good recordings for the public address system and for meetings at outlying installations. We've even taped some radio shows that the local station has carried. One particularly eloquent appeal on a roll in my file urges care on stairways—so Luke Starr went charging down to the basement in a hurry last Tuesday, lugging a tool kit in one hand. He and the kit wound up in a heap at the foot of the stairs, with blood from a compound fracture staining his spilled tools.

O.K., so the equipment does its job. We haven't had an eye injury or an amputation or a serious burn or a lift truck accident in months. Maybe my shiny recorder helped. Certainly the eye protection program, the guards and Jack's records and all the rest of my gadgets have prevented accidents.

But I've still had five lost time accidents, and the taste of too many cigarettes and my fifth cup of coffee is the bitter taste of defeat, and I have the deeply helpless sense of not knowing what the hell to do to improve the situation.

Two and a half years ago answers were easy enough to come by. I could look wise and point to this and that conspicuous shortcoming of the plant, its equipment, or its training program. But every success I've had has narrowed the field. Guarding, housekeeping, lighting are almost all I can reasonably ask for. Plant layout isn't too bad, and if the weaving of safety into our supervisor training and new employee indoctrination program isn't good, it's more my fault than anybody else's, because no one's thrown any major blocks into me on that score.

I remember that my old boss at Monarch once told me, "When what you think is right doesn't turn out to be right enough, you'd better try something that you don't think is right." I've never

really applied that idea, because I don't quite understand it, though it has from time to time made me review some previously rejected tactics.

But I've never before been quite as completely sure that further progress could not come only from an extension and intensification of the methods I know well and deeply believe in.

When I review the list of techniques available to safety men, I find only one which I have used little—and I have used it little because I haven't believed in it. So if my old boss was right, I had better examine my disbelief.

The area of safety work of which I have been most skeptical is what I've called, at various times, "hokum," "ballyhoo," "stunt stuff." I have never liked sentimental speeches, or the practical joke kind of thing such as making a supervisor in a department with accidents care for a goat or display a white elephant on his desk. I've even shied away, though not completely, from interdepartmental competition.

All my training has hammered into me the commonsense of safety, the engineering, the straightforward instruction, the directly functional type of organization for safety.

And yet, and it takes a deep sense of frustration to make me realize this, I know that many safety engineers for whom, as engineers, I have the deepest respect have used ballyhoo and stunts with success. Can I, then, with any assurance reject the technique merely because it does not please me? Perhaps all my resistance to the idea is based on the knowledge that it requires a type of skill which I lack, a skill which is derived from an entirely different type of experience and training than I have had.

We have people in Jackson-Barnes whose training and skill does lie in this field. There's Bill Jordan, with whom in the last

—To page 103

NSC PROFILES

THOMAS H. MACDONALD

THOMAS H. MACDONALD, U. S. Commissioner of Public Roads, is Vice-President for Traffic and Transportation of the National Safety Council.

He was born in a log cabin in Leadville, Colorado, in 1881. Shortly afterward his family moved to Montezuma, Iowa, where he grew up. He attend Iowa State College and received a degree in civil engineering in 1904. He remained at the College for two years to teach and study the growing science of highways.

After working for a short time in the engineering department of the Chicago Great Western Railway, he joined the Iowa State Highway Commission and became its chief engineer in 1913.

In 1919 he was appointed head of the Bureau of Public Roads. Although Congress had appropriated federal-aid funds since 1916, it was not until the Federal Highway Act of 1921 that a really comprehensive program of cooperation between the federal government and the states on a national system of roads was started. Commissioner MacDonald developed this program and he has been directing it ever since, through successive administrations.

In 1939 when the Bureau was transformed into the Public Roads Administration, he became Commissioner of PRA. As the nation's top highway administrator for the past 30 years, he is largely responsible for the multi-billion-dollar road system growing out of the federal-aid program.

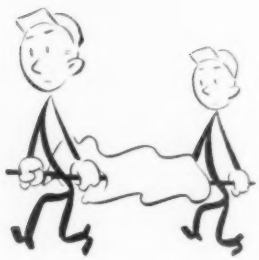
During World War II Commissioner MacDonald had the major responsibility for the permanent construction of the Alcan Highway. During that time he toured that wilderness project by jeep and plane as well as on horseback and on foot. Later he went to Europe to help improve war-disrupted transporation overseas. President Truman awarded him the Medal of Merit for his outstanding war-time services.

Commissioner MacDonald is the author of many papers on highway engineering, administration and finance. He received an honorary Doctor of Engineering degree from Iowa State College in 1929, and became the first recipient of the Bartlett Award for outstanding contribution to human engineering in 1932. In 1939 the engineering alumni of Iowa State College honored him with the Marston Medal in recognition of his achievement in engineering.

In addition to being Vice-President for Traffic and Transportation and a member of the Board of Directors of the National Safety Council, he is also Chairman of the Committee of Judges of the National Traffic Safety Contest. He is on the executive committee of both the Highway Research Board and the American Association of State Highway Officials. He is a member of the Institute of Traffic Engineers, the Federal Committee on Highway Safety and Chairman of the Coordinating Committee of the President's Highway Safety Conference.

CAUSE AND CURE

These examples are from reports of actual accidents. They list the causes and the steps taken to prevent recurrence



No Lockout

Cement plant employee had been working on interior of air separator and was about to leave when someone started machinery. He suffered fatal injuries.

Correction: Greater emphasis on importance of locking out motor switches when working on machines was made in training. Foremen were ordered to check before motors were started.

Slippery Floor

Employee slipped on grease while straightening blocks under trailer. He struck his head on the concrete floor and fractured his skull.

Correction: Keep all grease and other material that may cause falls off the floors. Stress good housekeeping throughout the entire working area.

Falls from Pole

Lineman stopped to shorten his safety belt when 13 feet up a pole. He lost his balance and fell, fracturing a vertebra in his back.

Correction: The lineman should have surveyed the pole for size and then made the necessary adjustments in his safety strap before attempting to ascend the pole.

Broken Leg

Broken concrete from old machine foundation was being moved through plant on truck when large piece jarred loose and fell on machinist, breaking leg.

Correction: Truckers and loaders were ordered to trim all loads carefully before starting trucks, which were rerouted through less hazardous areas to dumping place.

Pulls Elevator Control Cable Wrong Direction

Two employees were removing material, including two 14-foot planks, from the third floor of a building. After deciding to use the freight elevator, they sought out one of the building employees who instructed them in the operation of the wire-rope control cable by making one trip up and down the shaft. After the elevator was loaded on the third floor, one employee took it down to the second floor, and the 14-foot planks were slid on through the open top. They were placed on end leaning against the crossbar in the center of the elevator. The employee

operating the elevator then made the mistake of pulling the control cable in the wrong direction, and the elevator went up instead of down. Before he could reverse direction, the planks struck the ceiling of the shaft. In the confusion of the breaking planks, the employee was pushed to the floor with his right leg extending beyond the car. The car stopped but the employee suffered severe contusions of the thigh and knee.

Correction: When employees who are handling materials require the use of an elevator, they should get a person familiar with its operation to handle it.

Wm A. Irvin Honored At Testimonial Dinner

WILLIAM A. IRVIN, chairman of the Board of Trustees of the National Safety Council since 1942, and former president and a present director of the United States Steel Corporation, was the surprised guest of honor on April 14 at a dinner arranged by a group of business friends and associates.

The dinner, held in New York's Metropolitan Club, was tendered in the form of a testimonial to Mr. Irvin's accomplishments in the field of safety.

Walter S. Gifford, honorary chairman of the Board of the American Telephone and Telegraph Company, was toastmaster and officiated at the presentation to Mr. Irvin of a souvenir book signed by those attending the affair and containing the following citation:

"The Man We Honor"
WILLIAM A. IRVIN

Under whose leadership as Chairman of the Trustees of the National Safety Council since 1942:

This Nation's resources have been mobilized behind the cause of safety on a scale never before approached in this country;

Accidental deaths and injuries throughout the country have declined to the lowest point on record;

Forty thousand lives have been saved, and nearly four million injuries have been prevented;

Life has been made safer for every man, woman and child in this country.

Attending the dinner were:

Martin J. Alger, Vice President, New York Central Railroad

Frank L. Andrews, President, New Yorker Hotel Corp.

Bruce Barton, Chairman, Batten, Barton, Durstine & Osborn, Inc.

S. Bruce Black, President, Liberty Mutual Insurance Co.

John M. Budinger, President, Commercial National Bank & Trust Co.

Arthur H. Bunker, President, Climax Molybdenum Co.

Wallace E. Burke, Socony-Vacuum Oil Co.

Curtis E. Calder, Chairman, Electric Bond & Share Co.

Champ Carry, President, Pullman-Standard Car Mfg. Co.

Louis S. Cates, Chairman, Phelps Dodge Corp.

Mr. Irvin

William G. Chandler, President, Scripps-Howard Supply Co.

Lewis L. Clarke, New York

M. W. Clement, Chairman, The Pennsylvania Railroad Co.

J. Luther Cleveland, Chairman, Guaranty Trust Co. of New York

William H. Colvin, Jr., President, Crucible Steel Co. of America

Charles R. Cox, President, Kennecott Copper Corp.

Cleo F. Craig, Vice President, American Telephone & Telegraph Co.

Ned H. Dearborn, President, National Safety Council

John A. Diemand, President, Insurance Co. of North America

Findlay Douglas, Universal Atlas Cement Co.

Frederick H. Ecker, Chairman, Metropolitan Life Insurance Co.

Benjamin F. Fairless, President, United States Steel Corp.

W. J. Falvey, President, Massachusetts Bonding & Insurance Co.

Roy K. Ferguson, President, St. Regis Paper Co.

Henry J. Fisher, Chairman, Finance Committee, McCall Corp.

William Gaver, Assistant to Chairman, National Safety Council

Francis J. Gavin, President, Great Northern Railway Co.

Walter S. Gifford, Honorary Chairman, American Telephone & Telegraph Co.

Bernard F. Gimbel, President, Gimbel Brothers, Inc.

Judge Jonah J. Goldstein, Court of General Sessions

E. Roland Harriman, Brown Bros. Harriman & Co.

I. J. Harvey, Jr., President, The Flintkote Company, Inc.

John A. Hill, President, Air Reduction Company, Inc.

Charles Edward Hodges, President, American Mutual Liability Insurance Co.

Carl B. Jansen, President, Dravo Corp.

W. H. Johnson, Tucson, Ariz.

Harold K. Kramer, President, Greater New York Safety Council

F. W. Lafrentz, Chairman, American Surety Co. of New York

Leroy A. Lincoln, President, Metropolitan Life Insurance Co.

Lester Martin, President, Consolidated Textile Co., Inc.

A. W. McCain, Vice Chairman, Chase National Bank of the City of New York

Thomas H. McInnerney, Chairman, National Dairy Products

Gustav Metzman, President, New York Central System

Nathan L. Miller, General Counsel, United States Steel Corp.

Charles S. Munson, Chairman, Air Reduction Co., Inc.

Alexander C. Nagle, President, First National Bank of the City of New York

H. B. Nicholson, Coca Cola Co.

Benjamin O'Shea, Former President, Union Carbide & Carbon Co.

J. Lester Parsons, Chairman, U. S. Insurance Co.

John M. Price, Union Carbide & Carbon Co.

William E. Robinson, Executive Vice President, New York Herald Tribune

I. Rogosin, President, North American Rayon Corp.

Edward L. Ryerson, Chairman, Inland Steel Co.

Ellis D. Slater, President, Frankfort Distillers Corp.

Herbert E. Smith, Chairman, United States Rubber Co.

John Stilwell, Vice President, Consolidated Edison Co. of New York

James Tanham, Vice President, The Texas Co.

Ralph H. Tapscott, Chairman, Consolidated Edison Co. of New York

Gene Tunney, President, Stamford Building Co.

E. Howard Walker, Vice President, Shell Oil Co.

Ralph H. Watson, Greenwich, Conn.

Earle W. Webb, New York

M. G. B. Whelpley, New York

Frank A. Willard, Partner, Reynolds & Co.

Displays in the car windows of the Goodrich Safety Train tell the 'round the clock safety story. The number 2.69 on the front is the frequency rate for all company plants in the U. S. in 1949.

On the observation platform of the "Safety Special" two visitors test the resistance of safety glasses. The hand is to remind visitors to sign the register; more than 5,000 signed in 15 days.

"Safety Special" Tours Plant

"Get on the safety train" is the current accident prevention message at Akron plants of The B. F. Goodrich Company, rubber manufacturer.

To hammer home the message the company is displaying a replica of a streamliner and attracting much attention with it.

The nub of the plan is to use the almost universal interest in trains by young and old to get initial attention, and then to drive home the safety message through action displays which the visitor motivates by pushing a button.

As employees or others step up to view the three-coach, B. F. Goodrich Safety Special Train, a recorded safety message is played from a tape recorder actuated by an electric eye at the "Diesel" cab at the front. A plant tractor tows the train to plant locations.

Twelve safety displays in the car windows tell the around-the-clock safety story. One compartment displays a pair of nylon clad store display legs with the brief message—"Nice—Wear Your Safety Glasses." Another action display has a chrome-plated axe driven by electric motor, demonstrating that safety-toed shoes will withstand repeated blows from a sharp axe. A counter records the blows.

Traffic safety and home accident prevention emphasize off-the-job safety. Train visitors can pull fire alarm boxes to their heart's content.

The bright red, aluminum-trim train, 33 feet long, is complete with observation platform bearing a register for the names of employees and visitors viewing the Safety Special. Over 5,000 names registering the safety pledge were signed in a 15 day period. A souvenir ticket resembling a railroad ticket is given to all visitors.

The display was produced as part of the B. F. Goodrich Foremen's Club program which has been successful in reducing disabling injuries by one-half or more for three successive years to the point where the combined frequency-severity rate is the best in the rubber manufacturing industry.

T. J. Cain, safety director, attributes accident prevention accomplishments in the Company's plants to the production employee interest in safety sparked by advertising the subject through novel displays, plus letters and telegrams to the homes of all employees encouraging their participation.

One of the displays in a car window. This one reminds visitors not to endanger the home with makeshift wiring and overloaded circuits.

National Safety News Index Ready

The index for NATIONAL SAFETY NEWS, Volume 61, January-June 1950, is now available. Copies may be obtained by writing the Library, National Safety Council, 425 North Michigan Ave., Chicago 11.

"Cuts our cleaning costs more than $1200 annually"

"Cleans floor area size of city block in 6½ hours"

"Does 4-hour cleaning job in 30 minutes"

"Cleans 55,000 sq. ft. of floor in single day"

A *Finnell* SCRUBBER-VAC

OTHERS SAVE ON LARGE-AREA SCRUBBING ...Why Not You?

Now especially, with the need for cutting costs, savings such as are possible with a *Finnell Scrubber-Vac* are well worth investigating.

With a *Finnell Scrubber-Vac,* all four of the floor-cleaning operations can be done mechanically! This combination machine applies the cleanser, scrubs, rinses if required, and picks up. With one or two operators, a *Finnell Scrubber-Vac* can do a cleaning job better in half the time it takes a crew of six to eight using separate equipment for the several operations.

The model illustrated below, for heavy duty requirements, cleans up to 8,750 sq. ft. per hour. Has new type of water valve that assures uniform flow of water ... ⅓ more powerful vacuum for more efficient pickup . . . a *Finnell-developed* trouble-free clutch, affording effortless operation . . . improved waterproof wiring and fewer electrical connections, simplifying the cleaning of the machine. Vacuum performs *quietly.* The machine is *self-propelled.*

Finnell makes a full line of combination machines, including a model for small-area buildings with 2,000 to 15,000 sq. ft. of floor space. This machine reduces cleaning time approximately two-thirds! Handles *both* wet and dry work.

Have a talk with *the nearby Finnell man.* See what *you* would save with a *Finnell Scrubber-Vac.* Incidentally, it's good to know that when you choose *Finnell Equipment,* a *Finnell* man is available to help train your maintenance operators in its proper use. For consultation, demonstration, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 2207 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

FINNELL SYSTEM, INC.

Pioneers and Specialists in

FLOOR-MAINTENANCE EQUIPMENT AND SUPPLIES

BRANCHES IN ALL PRINCIPAL CITIES

Report on Industrial Safety At President's Conference

PROGRESS toward the goal of a 50 per cent reduction in work accidents by the end of 1952 was reported at the Second President's Conference on Industrial Safety held in Washington, June 5, 6 and 7.

Toward this goal, set by the First President's Conference in March, 1949, a reduction of seven per cent was announced by President Truman in his address at the opening session.

"This is good progress," said the President, "But it is not good enough. We can do better than that and I think we are going to.

"I am most optimistic about our future progress because of the way in which the great cooperative movement represented by this conference is gaining headway. State governments more and more are accepting their responsibility to carry the message of safety to every business establishment, large and small. State governors are giving their whole-hearted cooperation. Many of them are holding state conferences patterned after this national conference."

Stressing the importance of conservation in maintaining the nation's economic and military strength, the President said:

"The United States and other free nations throughout the world are challenged by the threat of totalitarianism. To meet that threat successfully requires the good health and vigorous effort of our citizens . . . We cannot afford wasted resources or wasted lives.

"To the extent that you succeed in your efforts, the richness and dignity of human life will be increased and the cause of peace and freedom will be strengthened."

Some 1500 persons, representing management, labor, government and other interested agencies attended the three day conference which was held in the Departmental Auditorium.

The meeting was opened by Honorable Maurice J. Tobin, Secretary of Labor, and general chairman of the Conference.

The afternoon session was devoted to reports on the organization and accomplishments of Governors' Conferences since the first President's Conference on Industrial Safety. Presiding at the meeting was Vincent P. Ahearn, executive director of the President's Conference and executive secretary of the National Sand and Gravel Association.

Following were the states reporting and their representatives:

Alfred C. Blackman, chief, Division of Industrial Safety, State Department of Industrial Relations, San Francisco, California.

Walter Coombs, chairman, Industrial Accident Board, Helena, Montana.

Paul E. Gurske, chairman, Industrial Accident Commission, Salem, Oregon.

C. George Krueger, deputy director, Engineering and Safety Bureau, Department of Labor and Industry, Trenton, N. J.

Robert M. Murray, chief, Division of Industrial Inspection, Department of Labor, Providence, Rhode Island.

Charles Sattler, commissioner, Department of Labor, Charleston, West Virginia.

Arvid Tienson, Division of Factory Inspection, Department of Labor, Chicago, Illinois.

Tuesday's sessions were highlighted by an address by Honorable Adlai E. Stevenson, Governor of Illinois.

"We have the know-how to reduce industrial accidents," said Governor Stevenson. "The President's Conference has given us the goal and the direction. We in our States must evolve more effective programs for the reduction of these accidents which will meet our specific needs and problems. There are certain general policies which apply to all of us, but it is our task to study our own situations and map our own courses of action."

Reports of the various committees, revised and expanded since the first President's Conference, were presented by their chairmen as follows:

Accident Records, Analysis and Use, presented by Ewan Clague, Commissioner of Labor Statistics, U. S. Department of Labor.

Engineering, presented by J. C. Stennett, American Mutual Alliance, in the absence of the chairman, James E. Trainer.

Laws and Regulations, presented by John J. Delmonte, commissioner, Massachusetts Department of Labor and Industries.

Labor-Management Cooperation for Safety, presented by Ralph T. Seward, attorney specializing in labor legislation, Washington.

Education, presented by Dr. Philip Taft, professor of economics, Brown University.

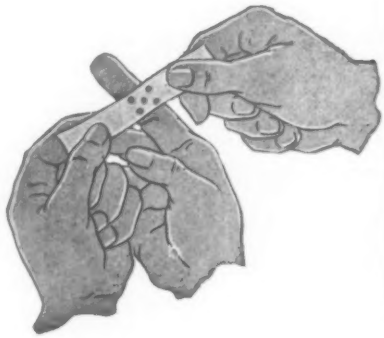
Programs and Services, presented by Cyril Ainsworth, assistant secretary, American Standards Association.

Research, presented by Dr. William P. Yant, director of research and development, Mine Safety Appliances Company.

Over-all direction of the Conference activities was conducted by the coordinating Committee, of which William L. Connolly, director of the Bureau of Labor Standards, United States Department of Labor, was chairman.

The National Safety Council was represented at the Conference by Ned H. Dearborn, president; Sidney J. Williams, assistant to the president; John M. Roche, manager, Industrial Department; F. A. Van Atta, director, Industrial Hygiene Division; W. C. James, director, Statistics Division; Wayne P. Hughes, director, School and College Division.

for industrial *First Aid*



MERCUROCHROME*

(H. W. & D. BRAND OF MERBROMIN, DIBROMOXYMERCURIFLUORESCEIN-SODIUM)

Do not neglect wounds, however small; even scratches and small cuts may become infected if they are not promptly and properly treated.

'Mercurochrome' (H. W. & D. brand of merbromin, dibromoxymercurifluorescein-sodium) is one of the best antiseptics for first aid use. It is accepted by the Council on Pharmacy and Chemistry of the American Medical Association for this purpose.

The 2% aqueous solution is not irritating or toxic in wounds; minor injuries are reported more promptly when 'Mercurochrome' is the routine antiseptic, because treatment is not painful.

'Mercurochrome' solution keeps indefinitely; the color shows where it has been applied.

Physicians have used 'Mercurochrome' for more than 28 years.

Be sure to include 'Mercurochrome' in your first aid supplies.

*Reg. U. S. Pat. Off

HYNSON, WESTCOTT & DUNNING, INC.

HW&D BALTIMORE, MARYLAND

Sell Yourself .... Sell Your Product!

By ROBERT M. McGOWAN

IN selling we find one of the main reasons for the rapid growth and progress of the United States of America. Many a product, when first manufactured, has been only mediocre in quality and limited in usefulness. Yet, because of a very effective and wide awake sales force and unique selling methods, the product has been kept before the public until it was perfected and sold itself on its own merits.

Well organized mass selling campaigns have caused demands on manufacturing plants for increased output, new methods of manufacturing, short cuts in production and enlargement of manufacturing facilities which, in turn, brought greater need for labor in all industries, both skilled and unskilled. Here we find the answer to America's rapid progress—mass selling leading to mass production!

Salesmen, as a group, were instrumental in this rapid progress. Individually, they are among the best informed and most quick-witted people; they keep uppermost in their minds their most important sales weapon—the ability to sell themselves.

The best and most successful salesman remembers: *Sell yourself! Sell your product!* This salesman opens the door by hand, but knows the only way he will be allowed to open his sample case is by selling his number one commodity—himself.

We who are in the safety business, and that includes safety directors, doctors, safety engineers, safety committeemen, personnel directors, policemen, firemen, etc., also have a job of selling. We sell the world the idea of "live a little longer and stay in one piece while you are living." If we can't sell a workman the idea of saving himself, we must sell the employer the idea of protecting the workman.

Following are some people from whom we may borrow sales methods:

Take a look at the man who runs the fruit stand; watch him spend time shining his apples and stacking each one into a neat pyramid. He shines each apple to a glossy red, puts it neatly into place with a colored background to show it off. The apple gets the extra appeal it needs to sell.

The jeweler's shop is another source of selling ideas. You will never find a piece of jewelry displayed without a proper box or background to make it more attractive. Many a man has bought a ring, a watch or a brooch because it was beautiful and, after getting it home and removing it from the plush box, felt disappointed. He had really fallen in love with the box—not the jewelry.

Stage shows and movies are another lesson in selling for us. Stage props, beautiful backgrounds, gaily colored costumes on the performers, spangles that glitter on dancers create a glamour that fascinates. We like it and pay big prices to see this panorama. We are sold.

We can use any one of a thousand approaches to sell safety, but no matter what method used, Sell yourself, Sell your product—safety!

ROBERT M. McGOWAN is Safety Director, Idaho State Insurance Fund, Boise, Idaho.

Air Force Safety Display

Eugene M. Zuckert, assistant secretary of the Air Force and Colonel Will L. Tubbs, chief of ground safety for the Air Force, discuss plans for protecting the lives of airmen the world over. They are standing before a safety display board set up in the concourse of the Pentagon in Washington, D. C. The display depicts some of the measures being taken to prevent wasteful accidents in the Air Force. By planning for the prevention of accidents the ground safety program helps the Air Force make effective use of every dollar provided for national defense.

Keep floors safe!

Keep stairs safe!

Keep ramps safe!

Keep All Walkways Slip-Proof With

tread-sure

HORN

The Plastic Abrasive Brush-Coating

Horn Tread-Sure produces a heavy antiskid surface on wood—concrete—or steel deck flooring. It is an abrasive-filled plastic brush-coating—simple to apply. It is resistant to gasoline, alcohol, oil and grease and many types of acids. Whether the surface is wet, dry or oily it provides a non-skid safety footing, preventing falls.

Designed for exterior as well as interior use, it may be brush applied over other paint or direct to unpainted surfaces. Used as it comes from the container. Available in three colors: Battleship Grey-Red-Green.

A. C. HORN COMPANY, INC.

Manufacturers of materials for building maintenance and construction—established in 1897

10th Street & 44th Avenue, Long Island City 1, N. Y.

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SUBSIDIARY OF SUN CHEMICAL CORPORATION

NS

GENTLEMEN:

Please send complete data on TREAD-SURE.

NAME_____ TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

Safety Slide Rule Shows Accident Records

IN searching for an unusual and effective method of presenting the statistical breakdown connected with the annual report, the health and safety department of Allis-Chalmers Manufacturing Company, Milwaukee, came up with the "slide rule" shown herewith. It puts all the information about the year's record at one's finger tips.

Incidentally, the information on the slide rule is purely fictitious. For the names of Allis-Chalmers supervisors the artist substituted National Safety Council staff members as well as a new set of figures.

The device is both compact and novel. The front carries five graphs: "Through the Years," which shows the drop in frequency and severity rates annually since 1942; the cumulative frequency rates for the company's three plant divisions — foundry, tractor and general machinery; the previous year's severity rates for these same divisions as well as for the entire plant; the cumulative frequency and severity rates for the entire plant, and a scale showing the standings of the various superintendents according to their annual frequency rate.

On the reverse side of the slide rule are two more graphs—one comparing compensation and medical costs through the years and the other comparing the number of doctors' cases for the three shifts.

The "slide" part of the slide rule gives a breakdown at superintendents and foremen's level of frequency and severity rates, national averages for the particular types of work, accident costs for the year, and budget allowances for the year. To get this information for his section, a superintendent would merely work the slide with the front of the slide rule uppermost until he sees his name.

If he desires a further breakdown of these figures—if he wanted to check the standings of individual departments in his sections—he would merely flip the slide rule over so the reverse side was up, and without moving the slide he would find all his departments and their frequency, severity and cost figures itemized.

The same thing will naturally work in reverse. A foreman checking his department's showing would merely need to turn the slide rule over to get the standing of the entire section.

An illustrated message on the reverse side of the rule promotes the use of a "15 minute a day" plan as a means of achieving greater safety on the job. This plan is an arrangement whereby each foreman personally devotes 5 minutes a day to an inspection of mechanical safeguards, 5 minutes to a review and establishment of safe job procedures, and 5 minutes to person-to-person conversation with an employee in the department on the subject of safety.

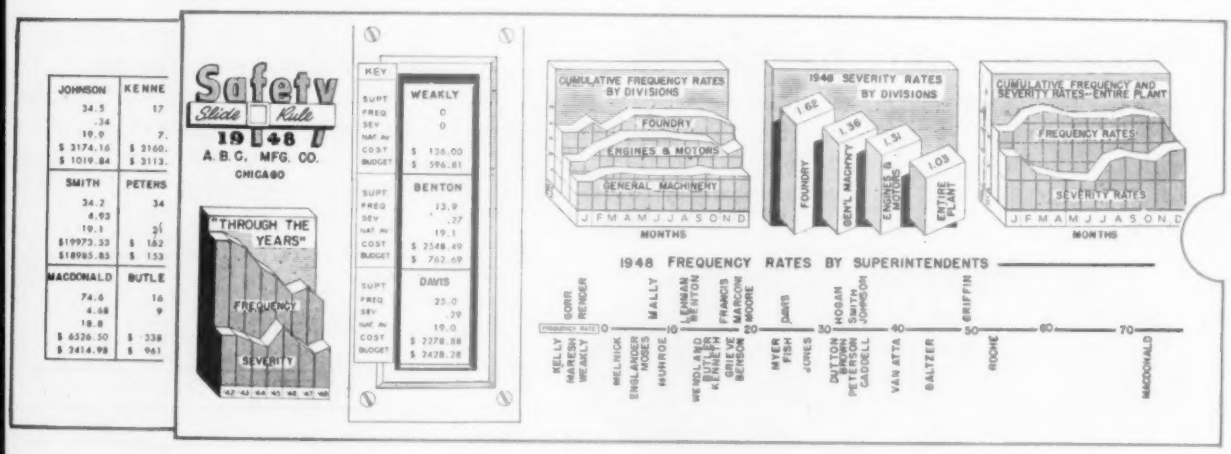
The slide rules attracted considerable interest among supervision and several months after they were issued they were still observed in use.

Accident Reduction Wins Coffin Award

For "work of outstanding merit in accident prevention during 1949," Robert A. Westra, manager of the safety division at Hotpoint, Inc., Chicago, has been awarded the Charles A. Coffin award. James J. Nance, president of the company, made the presentation.

The awards, named after the late Charles A. Coffin, pioneer industrialist and founder of General Electric Company, have been presented annually since 1923, except during the war. This is the first time the award has been made for accomplishment in accident prevention.

Mr. Westra qualified for the award through the program he inaugurated at Hotpoint. In two years' time the frequency of disabling injuries was reduced to one-third of what it had been previously. This was accomplished at a time when the company's working force was doubled.



WILL THIS COAL FEED THE WRONG KIND OF FIRE?

THOSE giant coal piles that stand next to power plants present little fire hazard in themselves. But when industry feeds its coal into pulverizing machinery to make a faster-burning, more efficient fuel, then sends it through ducts connecting pulverizers to storage bins—the picture changes! The fine coal particles ignite easily, burn fiercely—and flames inside the duct are almost impossible to get at.

That hazard is taken care of in a mighty effective way at the East River Plant of Consolidated Edison Company of New York—by a *Kidde* automatic extinguishing system.

If a fire breaks out in the duct, the system goes into action fast. Pressure trips operate to close the duct dampers . . . flame-smothering carbon dioxide (CO_2) pours through *Kidde* Nozzles directly into the duct. The flames are out in a few seconds—*and the unburned coal stays dry, clean, ready for use.*

It's in cases like this—where hazards are toughest—that Kidde skill counts *most.* It will pay *you* to bring your fire-protection problems to us.

Your local Kidde representative is probably listed in the telephone book.

When you think of CO_2, call Kidde!

K Kidde

Walter Kidde & Company, Inc., 745 Main Street, Belleville 9, N. J.

In Canada: Walter Kidde & Company of Canada, Ltd., Montreal, P. Q.

Industrial Health

Highlights in Industrial Medicine, Hygiene and Nursing
Compiled by F. A. Van Atta, Industrial Department, NSC

Beryllium Poisoning

Acute Inhalation Toxicity of Beryllium by Herbert E. Stokinger, George F. Sprague, Robert H. Hall, Norman J. Ashenburg, James K. Scott and L. T. Steadman. Archives of Industrial Hygiene and Occupational Medicine 1:379-397 (April 1950).

A comprehensive study of the toxicity of beryllium sulfate mist by inhalation was started late in 1946. The study has included the concentration range from 100 to 1 milligram of the sulfate per cubic meter of air and has included observations on 11 animal species in a series of four studies.

The results of these studies leave little room for doubt that the toxicity is primarily due to the beryllium rather than to any effect of the acidic part of the salt in which it is presented. This is shown by the fact that the type of injury produced remained the same over a concentration range of 100 times. The typical changes were injuries to the pulmonary organs with associated disturbances in the formation of the blood, a toxic anemia and changes in the nitrogen metabolism as shown by severe loss of weight and changes in the serum proteins. The loss of weight was particularly noticeable since it occurred irrespective of the consumption or refusal of food.

These changes all occurred at concentrations which were shown by control studies to be harmless when the sulfate ion was presented as a solution of sodium acid sulfate of the same acidity as the beryllium sulfate solution being used.

Finally, the pulmonary changes and deaths of the experimental animals were produced by the introduction of finely divided beryllium metal into the tracheas without the presence of any anion.

The daily inhalation of beryllium sulfate mist always produced an anemia in the experimental animals and this was found to be the most certain sign of the acute toxic response, even in the absence of any other positive sign. In dogs this result took an exposure of three to eight weeks at a concentration of 40 micrograms of beryllium per cubic meter of air. At this low concentration there was a tendency to return to normal in spite of continued exposure after the first acute poisoning. Three of five dogs showed some sign of recovery during the exposure period.

Measurements of the arterial oxygen tension as an index of the amount of lung damage gave variable results and indicated that this is not a reliable measure until the damage is quite extensive.

The concentrations of beryllium found in some of the tissues in which injuries have been produced indicate that beryllium is inherently one of the most toxic elements which has yet been studied. In some instances changes were produced by a few thousandths of a microgram of beryllium per gram of tissue.

Acute Inhalation Toxicity of Beryllium. II. The Enhancing Effect of the Inhalation of Hydrogen Fluoride Vapor on Beryllium Sulfate Poisoning in Animals by H. E. Stokinger, N. J. Ashenburg, J. DeVoldre, J. K. Scott and F. A. Smith. Archives of Industrial Hygiene and Occupational Medicine 1:398-410 (April 1950).

In order to test the hypothesis that exposure to hydrogen fluoride vapor increases the toxicity of beryllium a group of rats was exposed to a mist of hydrogen fluoride at 8 milligrams per cubic meter of air on one day and to a mist of beryllium sulfate solution at 9 milligrams per cubic meter on the next day. These concentrations had been previously shown to be such that the beryllium sulfate mist would produce 50 per cent deaths in the rats in three weeks and the hydrogen fluoride mist would have negligible effect.

As controls, four other groups of rats were used. One group was exposed daily to each of the experimental materials and another group was exposed to each of the toxic materials on alternate days.

The only groups with a significant number of deaths were those receiving daily exposures to beryllium sulfate and beryllium sulfate and hydrogen fluoride on alternate days. Forty per cent of each group died by the end of the experiment. This would indicate that the inhalation of the hydrogen fluoride had doubled the toxicity of the beryllium inhaled.

The inhalation of the beryllium sulfate, at the same time increased the quantity of fluorine stored in the tissues of the rats receiving both compounds to 1.3 times that stored by animals receiving the same amount of hydrogen fluoride with no beryllium.

Safety Program for Scrap Iron and Steel

The Institute of Scrap Iron & Steel Inc., national trade association of the scrap iron and steel industry, has started a safety program for its members which is designed to aid them in reducing worker injuries.

The program consists of promotional material, informative bulletins for management, and working plans. It is designed especially to meet the specific hazards of the scrap industry. In addition, the Institute is offering technical safety advisory service to its members to assist them in meeting special safety problems.

Edwin C. Barringer, executive vice president of the Institute, estimates the cost of disabling work injuries in the scrap industry approximates $2,000,000 annually.

The program is being co-ordinated with the annual safety contest of the Institute.

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For Distinguished Service

Recent presentations of the National Safety Council's Award of Honor for Distinguished Service to Safety

Stars indicate number of awards since the first.

Aluminum Co. of America

Cleveland Works, Cleveland, Ohio—Injury frequency rate was reduced 26 per cent and severity rate 72 per cent in 1949 as compared with 1948. Award presented June 9, 1950, by Judge Lee E. Skeel, Appellate Court, Cleveland, Ohio, and member, Board of Directors, National Safety Council.

Fairforest Co.

Fairforest Finishing Div., Spartanburg, S. C.—Injury frequency rate reduced 87 per cent and severity 100 per cent in 1949 as compared with 1948. The 1949 injury rate was only 34 per cent of the group average—injury severity rate was only 12 per cent of such average.

★ Stanolind Oil & Gas Co.

Tulsa, Okla.—The 1949 injury frequency rate was but 26 per cent of the group average—injury severity rate was only 57 per cent of such average. Award presented to E. F. Bullard, president, Stanolind Oil and Gas Company in Tulsa on June 28, 1950, by Ned H. Dearborn, president, National Safety Council.

United States Army

Washington, D. C.—Awards presented to the Far East Command, U. S. Army Europe, Fifth Army and Military District of Washington by Ned H. Dearborn, president, National Safety Council.

U. S. Rubber Co.

All Domestic Plants—The injury frequency rate was reduced 20 per cent and severity 35 per cent in 1949 as compared with 1948. Award presented to H. E. Humphreys, Jr., president, United States Rubber Company, by Ned H. Dearborn, president, National Safety Council, at Eau Claire, Wisconsin, on June 19, 1950.

Memorial Fellowship For Walter Paine

The Advisory Committee of the Center for Safety Education recently announced the establishment at New York University of a Memorial Fellowship for Walter Paine, for many years head of the Engineering and Inspection Division of Aetna Life Insurance Company.

Mr. Paine was a national leader in industrial safety activities. As vice president for industrial safety of the National Safety Council, he rendered a conspicuous service to the national movement. He also was active in the Engineering and Project Committee of the Association of Casualty and Surety Companies for many years as well as in the American Standards Association and other national organizations.

Because of Mr. Paine's devoted interest in industrial and vocational safety, it was decided that the holder of the fellowship bearing his name would be expected to carry on graduate studies and research in this field. This fellowship will carry an annual stipend of $1,500.

Other memorial fellowships provided by the Center for Safety Education at New York University are named in honor of former members of the advisory committee of the Center including: Albert W. Whitney, Edward J. Bond, and Sanford B. Perkins. These annual fellowship awards are made possible through a grant from the Association of Casualty and Surety Companies.

Winners in R.R. Employee Safety Announced

Six Class I railroads, group winners in the Railroad Employees' National Safety Award of the National Safety Council, had a 1949 employee casualty rate 43 per cent less than the average rate for all railroads in the group.

The combined rate of employees killed and injured per million man-hours worked was 4.23 for the six winners, as compared with a 1949 rate of 7.39 for all Class I railroads (those whose operating revenues exceed $1,000,000 annually).

The six Class I winners and their rates follow:

Norfolk and Western Railway Co. won first place among railroads whose employees worked 50,000,000 or more man-hours in 1949. Its total accident rate was 3.98, as compared with an average of 6.22 for all railroads in this group.

The New York, Chicago and St. Louis Railroad Co. (Nickel Plate) was winner in the 20,000,000 to 50,000,000 man-hours group. Its rate was 4.94, as compared with an average of 6.92 for all railroads in the group.

Central of Georgia Railway Co. won first place in the 8,000,000 to 20,000,000 man-hours group. Its rate was 3.47, as compared with an average of 11.09 for the group.

Central Vermont Railway, Inc. was winner in the 3,000,000 to 8,000,000 man-hours group, with a rate of 4.59 as compared with a group average of 11.30.

Missouri-Illinois Railroad Co. was first in the 1,000,000 to 3,000,000 man-hours group. Its rate of 1.63 compares with a rate of 11.12 for all railroads in this group.

The Colorado & Wyoming Railway Co. won in the group

whose employees worked less than 1,000,000 man-hours, with a record of no casualties, as compared with a group casualty rate of 11.93.

In other divisions of the contest, winners were:

The Atlanta zone of the *Pullman Co.* had the best employee safety record among the company's operating zones, while among its shop units, the St. Louis shop was the winner.

Among the switching and terminal railroads (those not engaged in line-haul operations), *The Indianapolis Union Railway Co.* was winner in the group whose employees worked more than 1,500,000 man-hours. *The River Terminal Railway Co.* had the best record among the roads whose employees worked less than that amount during 1949.

Study Fire Prevention Visual Aids

A study of audio-visual materials in the areas of firemanics, fire prevention and fire training is being conducted by the Division of Safety, Executive Department, State of New York. In the course of this study the Division has reviewed a large number of films, filmstrips, slides, charts, etc., submitted by distribution agencies.

The objective of the study is primarily to analyze each aid now in use to make a record for reference. A secondary objective is to select suitable aids for the Division's use in fire training and fire prevention work.

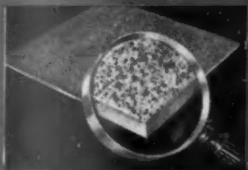
The Division would like to receive additional material, which should be sent to Leonard G. Silvern, safety training supervisor for the Division of Safety at 103 Washington Avenue, Albany 1. Since some aids have already been received and analyzed, it is suggested that the distributor write to Mr. Silvern before arranging shipment.

Four Reasons

Recent study comparing accident-free drivers with accident repeaters showed that the accident-makers were less informed on regulations, had inferior vision, preferred higher speeds, and were of the opinion they could drink more liquor than the others.

NOW! END SLIPPING ACCIDENTS WITH A.W. ALGRIP

(POSITIVE NON-SLIP FLOOR PLATE)



Even distribution of abrasive particles shown by magnifying glass.

Prevents slipping on factory floors, walkways, etc.

Protects workmen and vehicles from slipping on ramps and loading platforms.

REVOLUTIONARY, NEW ABRASIVE ROLLED STEEL FLOOR PLATE

Now, for the first time you can prevent dangerous, expensive slipping accidents with A.W. ALGRIP ABRASIVE *Rolled Steel* Floor Plate. It's the non-slip floor plate that safety engineers, architects, purchasing agents and plant owners have always wanted.

A.W. ALGRIP is made by rolling abrasive grain as an integral part of the upper portion of *steel* plate. It retains its non-slip qualities for a lifetime, because as the surface wears new abrasive particles are constantly exposed.

Install A.W. ALGRIP for positive non-slip protection in all areas subjected to oil, grease or water on which men walk or climb . . . loading platforms, ramps, washroom floors, fire escapes, running boards and similar surfaces. A.W. ALGRIP prevents slipping even on steep inclines. And remember it's low in cost, easy to install, requires no maintenance, and is resistant to heat, fire and heavy traffic.

Write or use coupon for complete information about this amazing, new, non-slip floor plate now.

A.W. ALGRIP ABRASIVE ROLLED STEEL FLOOR PLATE

A Product of **ALAN WOOD STEEL COMPANY**

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Gentlemen: *Please rush me complete information about A.W. ALGRIP*

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Other Products: PERMACLAD Stainless Clad Steel • A.W. SUPER-DIAMOND Floor Plate • Billets • Plates • Sheets • Strip • (Alloy and Special Grades)

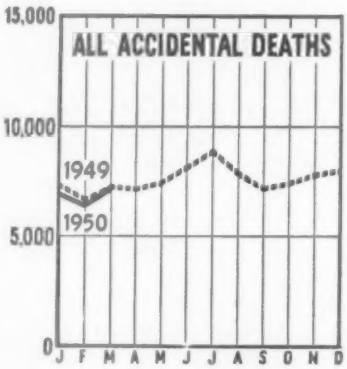
NEW NEW NEW NEW NEW NEW NEW NEW NEW NEW

THE ACCIDENT BAROMETER

Prepared by the Statistical Division, National Safety Council

The death total for March was 7,300, about the same number as occurred in March last year. Moderate reductions in deaths from home and public accidents were partially offset by a relatively large increase in motor-vehicle fatalities. Deaths from occupational accidents showed no change from 1949.

The three-month death total was about 20,400, or 4 per cent less than last year's comparable total of 21,200. There were moderate decreases in deaths from home and public non-motor-vehicle accidents and a small decrease in occupational fatalities. A moderate increase was recorded in deaths from motor-vehicle accidents.



	1950	*1949*	*Change*
March	7,300	7,300	0
Three Months	20,400	21,200	—4%

Motor-Vehicle Deaths

The March total of motor-vehicle deaths was 2,440, an increase of 15 per cent over March last year. Compared to 1948 it was an increase of 10 per cent.

Deaths for the three months totalled 7,060, an increase of 9 per cent over the 1949 total of 6,470. The death rate per 100,000,000 vehicle miles was 7.0, a 1 per cent decrease from the 1949 three-month rate of 7.1, and 40 per cent below 11.6 for 1941.

Of the 46 states reporting for three months, 14 had fewer deaths than in 1949 and 32 had more deaths. Reporting cities with populations over 10,000 had a decrease of 2 per cent for March and 1 per cent for the three months.

Regional changes from 1949 in the three-month death totals were:

North Atlantic	+ 5%
South Atlantic	+25%
North Central	+ 6%
South Central	+13%
Mountain	+44%
Pacific	— 5%

Occupational Accidents

Deaths from occupational accidents totalled approximately 1,100, the same number as occurred in March last year. The total for the three months was 2,900, a 3 per cent decrease from 1949.

The March frequency rate for plants in community council interplant contests was 7.71, a 26 per cent decrease from last year. The March rate for plants in the seven sectional contests conducted by the National Safety Council was 6.59, a reduction of 2 per cent from 1949. The three-month rate in the community council contests was 7.86—down 15 per cent; while in sectional contests it was 6.93, an increase of 2 per cent.

Public Deaths

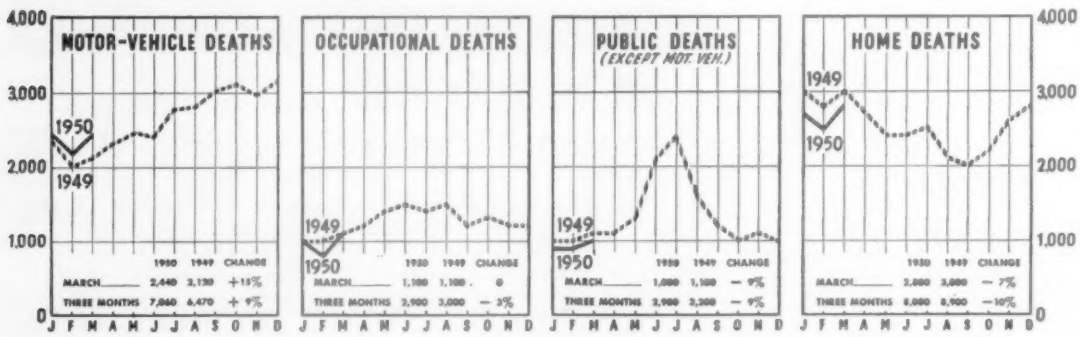
The death total for public non-motor-vehicle accidents in March was approximately 1,000, a reduction of 100 deaths from last year.

Deaths during the three months numbered 2,900, a decrease of 9 per cent from 1949. There were sizable reductions in fatal drownings and firearms accidents, and moderate decreases in deaths from falls and transportation accidents. Decreases were reported in all age groups with the greatest improvement recorded for children under 5 years of age.

Home Deaths

March deaths from home accidents numbered approximately 2,800, or 7 per cent below 3,000 in 1949.

The three-month death total was 8,000, a reduction of 10 per cent from 8,900 for last year. The largest reduction occurred in mechanical suffocation deaths but deaths from poisonings, falls, burns and firearms accidents also decreased. Moderate reductions were reported for children under 15 years and persons over 24 years of age. Deaths of persons 15 to 24 years showed a relatively large increase over last year.



Miners Pay Tribute to First-Aid Pioneer

Commemorating the 50th birthday of first-aid training in the U. S., several thousand visitors came to Jermyn, Pa., to honor one of its pioneers, Dr. Matthew J. Shields.

The ceremony consisted of a colorful parade led by the high school band, addresses by prominent leaders in industry and government, and the placing of a wreath at a monument by two members of the original first-aid class.

In October, 1899, when Dr. Shields was a general practitioner in this village of the Pennsylvania anthracite region, he talked to a meeting of local miners in a local hotel. Following his talk on the anatomy of the human body he offered to teach miners how to apply first-aid treatment. Twenty-four of the men volunteered and a class was organized. During the following year similar classes were organized throughout the country.

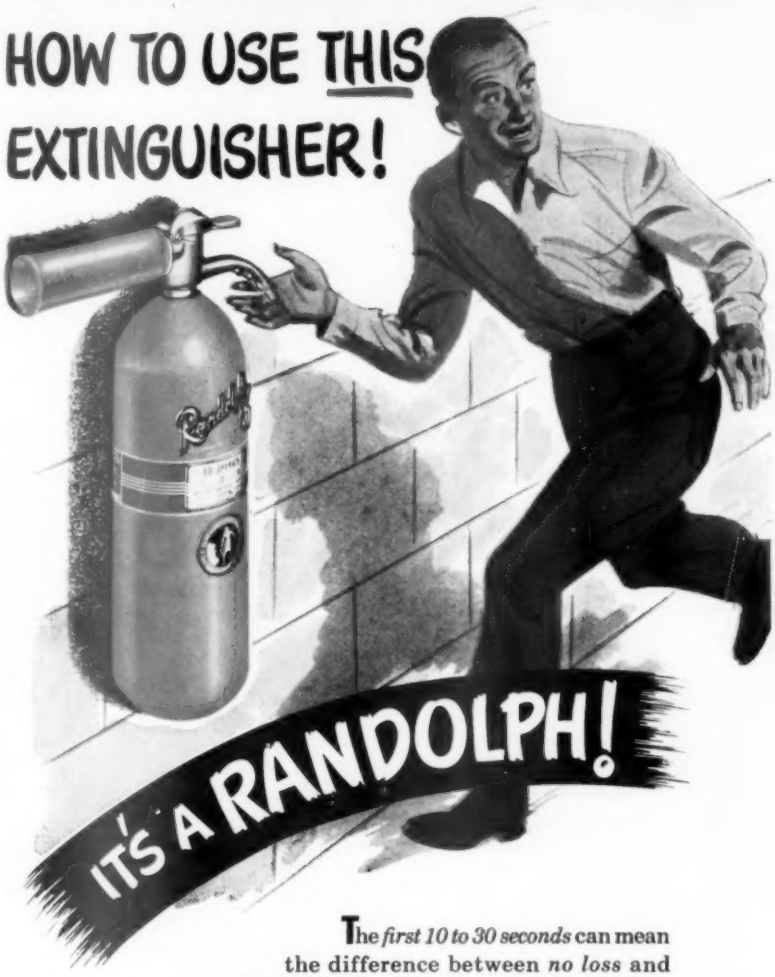
Each week Dr. Shields taught the 24 members of his first class what to do in case of an accident —how to stop bleeding, how to bandage a wound, how to treat shock, and other applications. He showed remarkable ability in utilizing the limited resources of the village and his enthusiasm won the support and cooperation of mine operators, civil authorities, and military officials.

In 1910, the American Red Cross adopted first-aid training courses and set up classes of instruction in every state in the Union. The U. S. Bureau of Mines also joined in the movement and organized an extensive program of training and first-aid.

In 1948, nearly 500,000 people had completed first-aid training courses of the Red Cross, while thousands more had received instructions from the U. S. Bureau of Mines instructors.

I am learning more and more each year that worry consumes, and to no purpose, just so much physical and mental strength that otherwise might be given to constructive work.—*Booker T. Washington.*

NO TIME LOST "WONDERING" HOW TO USE THIS EXTINGUISHER!



The *first 10 to 30 seconds* can mean the difference between *no loss* and *complete destruction* when fire starts. That's why Randolph's simple, *obvious* operation is so important in stopping fires *before* they spread!

Anybody can get a Randolph into action FAST! No valves to turn, no nozzles to adjust; just point and press your thumb! Randolph's snowy CO_2 is non-damaging, evaporates without a trace. It's non-toxic, won't conduct electricity, deteriorate or freeze.

UNDERWRITERS' APPROVED

Learn how Randolph gives your plant better *preventive* fire protection! Write Randolph Laboratories, Inc., 2 East Kinzie St., Chicago, 11, Illinois.

Randolph
FIRE PROTECTION EQUIPMENT

Announce Congress Speakers

THE program of speakers for the 38th National Safety Congress, which will be held in Chicago October 16 to 20, is rapidly nearing completion. In addition to hearing of new approaches to those subjects of perennial interest to safety men, delegates will be able to attend sessions giving special emphasis to specific hazards.

Among those who will address the sessions will be Roland Blake, principal safety engineer, Bureau of Labor Standards, U. S. Department of Labor; and H. W. Heinrich of The Travelers Insurance Company and author of the book, "Industrial Accident Prevention." They will discuss the fundamentals of safety at the Textile Section's Tuesday afternoon session; Mr. Blake will speak on the "physical factors" and Mr. Heinrich will discuss the "human factor."

Professor William B. Kouwenhoven, Dean of Engineering, The Johns Hopkins University, will speak on the effects of low voltage electric shock at the Wednesday session on "Low Voltage Electric Hazards."

S. H. Ash, chief, Safety Branch, U. S. Bureau of Mines, will address the joint Wednesday luncheon of the Mining and Coal Mining Sections. His topic will be, "My Impressions of Mining in Great Britain."

Two-Way Radio Helps Check Forest Fires

Two-way radio has been of tremendous help in preventing the spread of forest fires in the area of Bar Harbor and Mt. Desert Island, Maine, according to a report from John Harrington, a General Electric district representative.

The residents of those areas which suffered hundreds of thousands of dollars in damage in the great forest fire of 1947, purchased 10 mobile radio units and two remote control units from the General Electric Company in an effort to combat this ever-present threat of fire.

Since its installation in November, 1948, the radio system has more than paid for itself, says Harrington who cited an example of its practicability. Last summer when a fire report came in from the town of McKinley, which is separated from Bar Harbor by a mountain, a radio-equipped police car was driven to the mountain top. It relayed messages from Bar Harbor to the scene of the fire.

The 10 units are installed in such vehicles as the jeep patrol, which makes routine checks on forest fires; in the fire chief's car, in two pumping engines and the county medical examiner's car.

Portable radios also are hooked up near the beds of the firemen so that they can hear the emergency calls. A direct wire between the police and fire stations is used to cover both departments in case of emergency.

Included in the two-way radio hookup are Bar Harbor, Town Hill, Southwest Harbor and Somesville. Southwest Harbor also has ordered two G.E. walkie-talkie radio sets to use with the mobile unit.

In addition to the radio units there are lookout towers on Beech Cliff and Mt. Cadillac. When a lookout spots a fire he calls the Bar Harbor Fire Department which immediately dispatches fire-fighting equipment to the area.

Above: Two-way radio keeps jeep patrol in constant touch with headquarters. Below: The operator at the fire department prepares to send out an emergency call to vehicles in the field.

DEADLINE DOUBTS?

. . . stay on schedule with HOOD gloves!

MODEL #4703

—Full Neoprene coated, knit wrist style used in all general industry. Liquid proof, curved fingers, no seams on working surface.

Industry is always on the lookout for an economical solution to the many production problems involved in maintaining shipping schedules. And for *one* of these ever-present problems, the protection of employees' *vital* hands, you need look no further. The most economical, longer lasting solution is Hood Industrial Work Gloves!

Shown here are two of the many and varied types of Hood gloves available for industry today . . . gloves that have resulted from the combined and continuing efforts of experienced chemists, engineers and technicians using the most modern equipment and techniques available, *plus* the further proof of production performance assured by "on the job" testing in *every* type of industry!

Whatever your industry may be, whatever your protection problem may be, adopt this *safe* solution . . . the Hood line of Neoprene, Rubber or Plastic coated gloves! Our catalog is yours for the asking.

MODEL #4710

—Neoprene palm coated glove for general use in general utility but having 7—8 times the wear of standard canvas gloves.

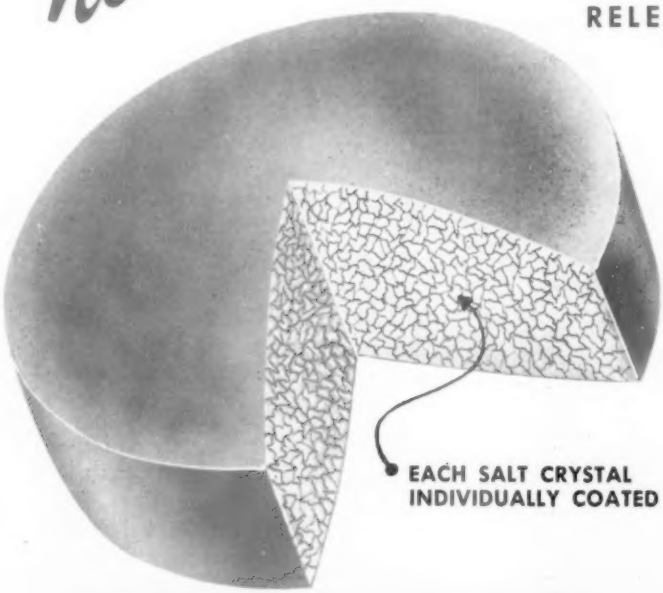
HOOD for NEW Safety PLUS

HOOD RUBBER CO. Watertown, Mass.

New! "PEP-UP" IMPREGNATED SALT TABLETS

RELEASES SALT IMMEDIATELY

(Not Enteric Coated)



- *No delay in getting salt into system*
- Starts dissolving immediately
- Dissolves completely in about 100 minutes
- Controlled dissolving eliminates nausea
- Withstands rough handling and storage without deterioration
- Meets Government Specification No. SS-S-31C.

Write for literature and prices

THE PACKAGE IS THE DISPENSER

"PEP-UP" Impregnated Salt Tablets come to you in sanitary, factory-sealed Dispensers at no extra cost. THROW AWAY DISPENSER WHEN EMPTY. HANG UP A NEW ONE. Save the expense of purchasing, servicing and replacing individual dispensers.

UNITED STATES SAFETY SERVICE CO.

KANSAS CITY 6, MO. • BRANCHES IN PRINCIPAL INDUSTRIAL CITIES

Green Cross News . . .

Activities of Local Safety Councils and Chapters

75 Councils Enrolled

Seventy-five Chapters and Chartered Councils have been enrolled under the Conference Plan (as of May 20) and many of the unchartered organizations will sign the new Participation Agreements as the present memberships expire. The list includes 54 Class "A" councils and Chapters, 7 Class "A" state councils, 8 "B" and 6 "C" local organizations.

The Conference Plan was given the final go-ahead signal by the NSC Board of Directors last October. Great progress has been made since that time. Under the Plan, organizations that sign the Agreement have the option to retain their own council name.

The complete list as of May 20 follows:

Class "A" Organizations:

Albany Safety Council
Greater Atlanta Safety Council
Baltimore Safety Council
Lehigh Valley Safety Council, Bethlehem, Pa.
Greater Chicago Safety Council
Traffic Safety Council of Metropolitan Cincinnati
Greater Cleveland Safety Council
Concord Safety Council, N. H.
Greater Dayton Safety Council
Denver Chapter, NSC
Des Moines Safety Council
Duluth Chamber of Commerce Safety Bureau
Safety Council, Chamber of Commerce of Fort Wayne
Fort Worth Safety Council
Greater Grand Rapids Safety Council
Greenwich Safety Council, Conn.
Hamilton Safety Council, O.
Indianapolis Safety Council
Jacksonville, Fla., Safety Council
Kansas City Safety Council, Mo.
Greater Los Angeles Chapter, NSC
Lansing Safety Council, Mich.
Louisville Safety Council
Middletown Safety Council, O.
Milwaukee Safety Commission
Mobile Safety Council
New Haven Safety Council
Greater New York Safety Council
Eastbay Chapter, NSC, Oakland, Cal.
Oklahoma City Safety Council
Omaha Safety Council
Pasadena District Chapter, NSC
Blackstone Valley Safety Council, Pawtucket, R. I.
Maricopa County Chapter, Phoenix, Ariz.
Western Pennsylvania Safety Council, Pittsburgh
Berkshire County Safety Council, Pittsfield, Mass.
Traffic and Transportation Commission, Portland, Ore.
Safety Council Division, Automobile Club of Rhode Island, Providence, R. I.
Racine County Safety Council, Wis.
Rochester Safety Council, N. Y.
Sacramento Safety Council
St. Joseph Safety Council, Mo.
San Francisco Chapter, NSC
San Jose—Santa Clara Chapter, NSC, San Jose, Cal.
Seattle Safety Council
Caddo Bossier Safety Council, Shreveport, La.
Spokane Area Safety Council
The Safety Council of Greater St. Louis
Hampden County Accident Prevention Council, Springfield, Mass.
Safety Council, Syracuse Chamber of Commerce
Citizens Safety Council of Hillsboro County, Tampa, Fla.
Worcester County Safety Council, Mass.
Safety Council of Greater Youngstown, O.
San Joaquin County Safety Council, Stockton, Cal.

State Safety Councils—Class "A":

Delaware Safety Council
Idaho Chapter
Minnesota Safety Council
New Jersey State Safety Council
Ohio State Safety Council
Utah Safety Council
West Virignia Safety & Health Council

Class "B" Organizations:

Bismarck Safety Council
Bridgeport Safety Council, Inc.
Greater Endicott Safety Council, Endicott, N. Y.
Broome County Safety Council, Johnson City, N. Y.
Sioux City Safety Council, Ia.
Safety Council Division, South Bend Association of Commerce
Toledo Safety Council
Utica Safety Council.

Class "C" Organizations:

Erie Safety Council, Pa.
Evanston Safety Council, Ill.
Mason City Cerro Gordo County Safety Council, Ia.
Kenosha Safety Council, Wis.
Superior and Douglas County Safety Council, Wis.
Rahway Safety Council, N. J.

4,000,000 Man Hours

On May 1 the employees of the Lincoln Shops of the Western Electric Company at Lincoln, Neb., completed 4,000,000 man hours without a disabling injury. Tom A. Burke of the NSC staff was attending a meeting of the Lincoln and Lancaster Safety Council at the time and started the W. E. Company off toward its 5,000,000 man hour goal at a special ceremony. Grey Jewett, head of industrial relations at the Lincoln Shops, reported that the last accident occurred in April, 1948, and that the average number of employees had been 1058 since that time.

Arkansas Progress

In March the Arkansas Safety Council reported the organization of ten community safety councils in that state with the comment that all were functioning. Recently five more councils, all county organizations, were announced by Manager Harvey Booth as follows: Jefferson County, Lonoke County, Dallas County, Washington County and Nevada County Councils.

Teamwork

When the Power Press Section of NSC met recently in the Twin Cities, St. Joseph and Benton Harbor, Mich., officials of the Twin Cities Safety Council were invited to attend and participate in the all-day Conference. The Twin Cities Safety Council is building up a strong industrial division that meets each month to discuss important phases of industrial safety. The Council recently sponsored a safety school for foremen in which 18 important industries were represented. Gerald Shipman, manager of the council, now

has the following sections functioning: industrial, traffic, school and woman's division. Robert P. Small, prominent attorney, is president of the safety council.

Frequency Reduced

The industrial safety contest sponsored by the Greater Cleveland Safety Council, in cooperation with the Industrial Commission of Ohio, recently completed its 19th successive year with a frequency rate of 10.72, the lowest since the competition was started. There were 748 companies enrolled, having an average employment of 106,602 workers, reporting 107,537,084 man hours worked. R. H. Ferguson, assistant director of Industrial Relations of Republic Steel, is vice-president for Industrial Safety of the Cleveland Council.

George M. Burns III

George M. Burns, director of the Kansas City Safety Council, is in a Kansas City hospital with a serious throat ailment that will probably keep him under treatment for several weeks. He can be reached through the Kansas City Safety Council, 419 Dwight Building, Kansas City 6, Mo. His many friends in the national safety field are pulling for a quick and permanent recovery.

Keynote Is Cooperation

Every home in Lansing, Mich., (approximately 20,000) received a copy of "Cooperation Is the Keynote in Lansing," a feature article by Harold Lillie, manager of the Lansing Safety Council, published some months ago in "Traffic Review," the official publication of Northwestern University Traffic Institute. The Executive Committee of the council ordered reprints in sufficient quantity so that the "cooperation for safety" idea so well brought out in the article could be planted at every fireside in the Michigan industrial city. The article has attracted favorable attention.

The essence of modernity is that progress no longer waits on genius. Instead, we have learned to put our faith in the organized efforts of ordinary men.

—W. E. Wickenden.

Eyes RIGHT for your RIGHT Pyrenes!

Buy them the reliable, prompt, economical, easy way—from your local Pyrene jobber

There's one best extinguisher to guard any fire hazard. Call on your local Pyrene* jobber for the right Pyrenes for your hazards. Pyrene makes extinguishers for *every* fire hazard; jobbers carry various types in stock. That means you get immediate delivery, pay no freight charges from the factory. One invoice handles everything. And you deal with an established business right in your community.

New stainless steel extinguishers have been added to the seamless copper shell extinguishers in the Pyrene line. Now more than ever, it pays you to *standardize* on Pyrene—for precision workmanship, real dependability, greatest dollar value. Write for name of your local Pyrene jobber.

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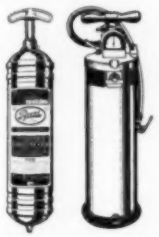

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The all-purpose extinguisher effective on almost every kind of fire. Safe on electrical fires, too. 1 qt. and 1½ qt. pump types; 2 qt. and 1 gal. pressure-operated types.

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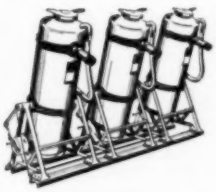
Couple playpipe to hose line. Every 19 gals. of water and 1 gal. of PYRENE Foam Compound yield 350 gals. of foam! For flammable liquids and ordinary combustibles.



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Pyrene FIRE EXTINGUISHERS

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Affiliated with C-O-Two Fire Equipment Co.

"Safety Sentinels"

To visualize the safety organization to employees of the Marcus Hook refinery, the Sun Oil Company prepared this photographic display representing the 166 "Sun Safety Sentinels who are on the alert for the protection of all Sun employees."

These safety sentinels include the 87 employees of the guard department; 10 fire marshals; 24 technicians in the gas-testing department; 18 doctors, nurses and technicians in the medical department; a safety director and 10 safety engineers, and 16 corrosion engineers. All are ready to spring into action in an emergency in addition to carrying on their daily work in fire detection and correction of hazards before they cause accidents.

These departments work in close cooperation in devising safe work procedures and developing and testing types of protective clothing such as are worn by the eight men in the foreground.

This display appeared in *Sun Refinery News*, which is a valued medium for safety messages. This publication was one of the award winners in the National Safety Council's Employee Publication Contest for 1949.

Safety Men Honored by ASA

American Standards Association recently announced the presentation of awards to members of its Standards Council who have served more than a year. Honorary certificates were given in recognition of their work in the development of industrial standards. These men represent trade associations and technical societies, and more than half are employed by manufacturing firms in many industries.

Among those in the safety field who were honored are Earl R. Maize, director, safety division, National Coal Association, Washington, D. C.; John V. Grimaldi, director of industrial division, Association of Casualty and Surety Companies, New York; George W. Booth, Gardner, New Jersey, former representative of the Fire Protection Group; T. B. McMath, director of division of inspection and accident prevention, Maryland Casualty Company, Baltimore, Md., representing the Association of Casualty and Surety Companies; W. Dean Keefer, vice president and manager, engineering department, Lumberman's Mutual Casualty Company, Chicago, Illinois, representing the National Safety Council; A. S. Johnson, vice president and manager, engineering department, American Mutual Liability Insurance Company, Boston, Mass., representing the Association of Casualty and Surety Companies; F. J. Graf, assistant vice president and chief engineer, Massachusetts Bonding and Insurance Company, Boston, Mass., representing the Association of Casualty and Surety Companies; Curtis R. Welborn, president, Underwriters' Laboratory, Inc., Chicago, Illinois, representing Fire Protection Group; Arthur L. Brown, chief engineer, factory mutual engineering division, Associated Factory Mutual Fire Insurance Co., Boston, Mass., representing The Fire Protection Group.

Thomas D. Jolly, Pittsburgh, president of ASA, made presentations during ceremonies on May 19, 1950, at ASA headquarters. Mr. Jolly, vice president, Aluminum Company of America, emphasized the value of a nationally coordinated set of standards as a management tool capable of obtaining economies in manufacture which can be passed on to the consumer. He cited the members of ASA Standards Council as the men responsible for approving more than 1,100 American Standards which form the basis of mass production techniques.

F. M. Farmer, president, Electrical Testing Laboratories, New York, formally accepted the awards for 70 members of the Council from many parts of the United States. Mr. Farmer is among those whose contributions in standardization work extend over more than 25 years. He pointed out the importance of the ASA as the coordinating agency under whose judicial procedure overlapping interests and conflicting views of various groups can be resolved.

Duties of the Standards Council are to formulate rules for standards development and to approve standards that are supported by a consensus of those concerned with them. It also decides what projects to develop, their scope, and makes sure that personnel of com-

mittees working on standards represent all who are concerned.

In addition to organization members, more than 2,200 leading industrial firms in nearly every field are members of ASA. One of the principal purposes of the association is to coordinate standardization work of many national organizations in order to assure standards that have inter-industry recognition on a nation-wide scale.

Penn State to Hold Ind. Safety Institute

To train supervisors to make their plant accident prevention programs work, the third annual Industrial Safety Institute will be held at the Pennsylvania State College, State College, Pa., September 18-22.

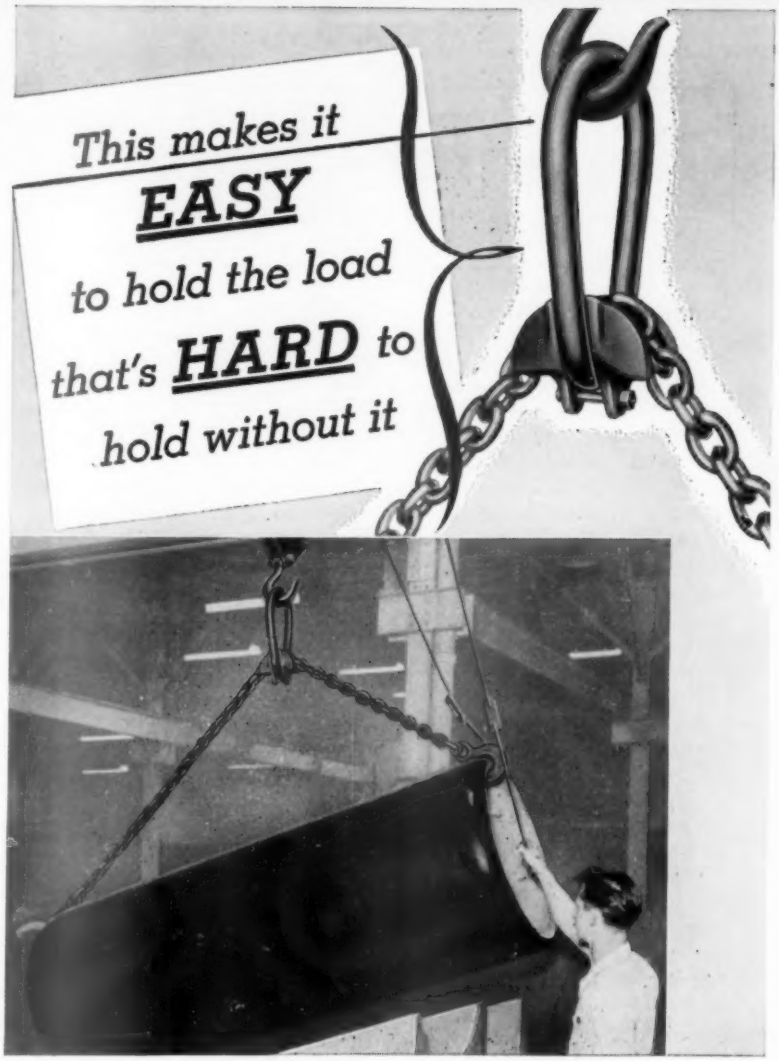
Sponsored by the Institute of Public Safety of the College, it is designed for men whose present duties include industrial accident prevention.

At the sessions, new approaches to industrial safety practices will be developed and experiences of the enrollees will be reviewed. The Industrial Safety Institute will also give background to the insurance safety inspector who should understand the problems confronting the safety supervisor in the plant.

Persons who may be interested in enrolling for the Institute would include safety directors, members of a safety committee, insurance safety inspectors, labor representatives interested in industrial safety, and labor relations men.

Instructors for the group will be selected for the practical experience they have had in setting up or carrying out a safety program.

Some of the topics to be discussed in this five-day course are Intra-Organization Service of Accident Prevention Divisions; Painting to Prevent Accidents; Investigation, Reporting, and Recording Procedures; Workmen's Compensation—Future Trends; Plant Inspection, Correction, and Follow-Up; Accident Prevention Aids, Supplies and Materials; Fire Prevention; Industrial Hygiene; Women and Minors in Industry; Keeping the Program Alive; and What Management Expects.



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• It comes as a complete unit—Pear Shaped Link, Adjuster and Single Sling with hooks at both ends. Slings of "85" and "125" ENDWELDUR steel chain—from ½" to ⅞"—Link and Adjuster sized to correspond to size of chain. Length of chain to your specification.

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The Safety Library

Books, Pamphlets and Periodicals of Interest to Safety Men

Communicating Ideas

Communicating Ideas to the Public. By Stephen E. Fitzgerald. Published by Funk and Wagnalls Company. New York, 1950, 267 pp. $3.50.

In this book Stephen Fitzgerald outlines the problem of communicating ideas as it applies to the public in general. But safety engineers reading this text will be able to draw from it much that will help them to understand their problem. For a big part of the problem of accident prevention is the problem of communicating ideas.

What a man thinks underlies what he does. To change unsafe habits, we find what ideas are at the root of a man's conduct and try to replace them with others more favorable to our purpose. This is not easy to do.

We need to understand, points out Fitzgerald, that mere statement of an idea does not automatically result in retention of it. Nor is it certain that there will be performance of the action implied in the idea.

The author examines the function of radio, movies, television, face-to-face discussion, the printed word, and still pictures in spreading ideas to the general public. In the chapters on this subject there is much information which will be useful to men interested in putting across safety ideas.

E. P. Marconi

Power Through Discussion

Creative Power Through Discussion. By Thomas Fansler. Published by Harper & Brothers, New York. 1950. 211 pp. Price $3.

Since the very start of organized safety much dependance has been placed upon meetings. Whether it be the small "on the job" committee, the divisional, departmental or general committee, there is always hope for a meeting of minds and a unity of purpose.

Such conferences, as they may be called, can be productive of much good if properly conducted and each can be a touchstone of the safety effort. It is in the committee meeting or conference where freedom of discussion blends into purpose and final achievement that the success of the safety program is marked.

By clearly demonstrating in interesting and easy-to-follow style with simple illustrations, the author, in "Creative Power Through Discussion," has developed for us a way to harness the latent force of the multitudinous safety committees into a dynamic power for success.

Organized safety is simply people trying to help people, and because people are people with differences in background, opinion and temperament, the problem is one of seeking to reconcile these into a harmonious whole.

The author's closing statement, "How good an Orchestra is your Group?" is a ringing challenge to those who have conducted the safety meetings or conferences of the past and those who will conduct similar meetings in the future. In meeting that challenge we can find true power for the minimizing of accidental deaths or injuries.

D. E. Mumford

Toxicology

The Chemistry of Industrial Toxicology. By Hervey B. Elkins, Ph.D. Published by John Wiley and Sons, Inc., New York. 1950. 406 pp. $5.50.

Dr. Elkins has divided this book into, essentially, four divisions: a discussion of the toxicities of various common elements, inorganic compounds and organic compounds; the hazards inherent in various common industrial processes; maximum allowable concentrations of atmospheric contaminations; and methods of sampling and determination of atmospheric contaminants.

In addition there is a short introduction giving the major physiology of industrial toxicology and some indication of the value of various types of test procedure in the whole problem of evaluating the hazard of a particular environment.

The text is mainly valuable for the information which it contains upon the sampling and analytical methods which have been found to be valuable by a large and efficient state regulatory body and its indication of their reasons for the use of a particular method in a particular place. The table of suggested maximum allowable concentrations also lists the values used by the Massachusetts Department of Labor and Industries and indicates their reasons for using a particular value in instances in which there is some controversy.

The treatment of the subject is generally short and rather superficial with the exceptions noted. It will be of considerably more value to the person with only a general interest in the subject or to a beginner in the subject than it will to the specialist in this field.

F. A. Van Atta

BOOKS AND PAMPHLETS

Alcohol

The Problem Drinker in Industry. Published by Allis-Chalmers Manufacturing Company, Industrial Relation Division. Milwaukee, Wisconsin, 1950. 18 p. Free.

Chemicals

Formaldehyde. Published by Manufacturing Chemists' Association, 216 Woodward Building, Washington 5, D. C. 1950 revision. 13 p. Price 20¢.

Paraformaldehyde. Published by Manufacturing Chemists' Association, 246 Woodward Building, Washington 5, D. C. 1950 revision. 11 p. Price 20¢.

Fire Protection

Recommended Good Practices for Storage and Handling of

Liquefied Petroleum Fuel Gases. Published by Factory Insurance Association, 555 Asylum Street, Hartford 2, Connecticut. 1950. 101 p. Free.

Hours of Labor

State and Federal Hours Limitations. A Summary. Published by U.S. Department of Labor, Washington 25, D. C., 1950. 141 p. Free (Bulletin No. 116).

Mines

Experiments on Safety of Incombustible Plugs for Stemming Explosives. Published by U. S. Bureau of Mines. 1950, 13 p. Available from the Bureau, Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pennsylvania. Free (Report of Investigation 4686).

Extinguishing Fire With Carbon Dioxide in the Valier Mine, Valier Coal Company, Valier, Franklin County, Illinois. Published by U. S. Bureau of Mines. 1950. 10 p. Available from the Bureau, Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pennsylvania. Free (Information Circular 7563).

Fighting a Fire in No. 59 Mine. Peabody Coal Company, Springfield, Sangamon County, Illinois. Published by U. S. Bureau of Mines. 1950, 19 p. Available from the Bureau, Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pennsylvania. Free (Information Circular 7564).

Recent Rock-Dusting Experiments for Arresting Coal-Mine Explosion. Published by U.S. Bureau of Mines. 1950, 16 p. Available from the Bureau, Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pennsylvania. Free (Report of Investigation 4688)

Report of Research and Technologic Work in Explosives, Explosions, and Flames. Fiscal Year 1949. Published by U. S. Bureau of Mines. 1950, 68 p. Available from the Bureau, Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pennsylvania. Free (Report of Investigation 4667)

Standards for Mining and Industrial Electric Locomotives. Published by National Electrical

—*To page 90*

More BRADLEYS In Enlarged Diamond Chain Plant

29 Washfountains Added In New Section
STAINLESS STEEL—FOOT CONTROLLED

ARCHITECTS, D. A. Bohlen & Son; GENERAL CONTRACTOR, Carl M. Geupel Const. Co.; PLUMBING, T. W. Woelfing Co.

• In the new modern plant extension of Diamond Chain Company, Indianapolis, 29 Bradley Washfountains have been installed. Like those already in use, the new ones also are stainless steel models.

Bradleys provide the maximum in sanitary facilities, and require minimum of maintenance. Eight to 10 persons may be accommodated simultaneously—each provided with clean running water from the central sprayhead—no faucets to touch. Piping connections are reduced 80 per cent and water consumption, 70 per cent. BRADLEY WASHFOUNTAIN CO., 2237 W. Michigan Street, Milwaukee 1, Wisconsin.

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Personals

RAY CARR, member of the Board of Directors of the National Safety Council, was elected president of The National Association of Transportation Advertisers at the organization's annual meeting in May. Mr. Carr will continue to direct his own concern, the Ray Carr Organization, Portland, Oregon. The headquarters of the National Association of Advertisers is at 30 Rockefeller Plaza, New York City.

JOHN E. MILLER, since 1946 assistant supervisor of the safety department of Allis-Chalmers Norwood Works, has been named supervisor of the department, according to an announcement by J. D. Greensward, Norwood Works' general manager. Miller has been employed by Allis-Chalmers Norwood Works since 1945. Prior to entering the safety department, he was employed as veterans' counselor in the personnel department.

NSC Engineer Honored

ROBERT L. MOORE, senior engineer on the staff of the National Safety Council, was one of 25 graduates to receive Twenty-fifth Anniversary Medallions at the twenty-fifth anniversary program at the Speed Scientific School, University of Louisville. The medallions, which are awarded to distinguished alumni and industrialists, were presented May 19 by Dr. R. C. Ernst, dean of the Speed Scientific School.

Mr. Moore ('32) has been associated with the construction industry almost continuously since graduation, first with contracting firms and later with Liberty Mutual Insurance Company. In 1945 he joined the staff of the National Safety Council and has served as staff engineer of the Construction and Cement and Quarry Sections.

NELSON P. INGALLS has been appointed safety engineer by Norton Company, Worcester, Mass. He succeeds FRANCIS J. BURGOYNE who has been made resident engineer in charge of construction of the company's new South African plant.

Mr. Ingalls was educated at Worcester Polytechnic Institute and before coming to Norton Company in 1937, he had been associated with the Heald Machine Company and Reed and Prince Manufacturing Company, both of Worcester. He also served as a manager and assistant superintendent of the Atlantic and Pacific Tea Company for several years.

His Norton career prior to his present appointment was in the organic products department where he served successively as instructor, assistant foreman and assistant superintendent. He is a director of the Norton Credit Union and is a member of the Labor-Management Committee.

ASSOCIATION EXECUTIVES PLAN SAFETY PROGRAM

Rear (standing) left to right: Grover C. Brown, American Iron and Steel Institute; E. C. Metzel, Association Liaison Committee, Metal Section, NSC; Bonnie Trent, American Hot Dip Galvanizers Assn.; Stewart J. Swensson, American Hot Dip Galvanizers Assn.; Ivan LeGore, Portland Cement Assn.; A. R. Graham, Small Business Committee, Industrial Conference, NSC; A. G. King, American Gas Assn.; J. M. Sprouse, Associated General Contractors; John C. Cushing, American Steel Warehouse Assn.; F. R. McLean, American Petroleum Institute. Front row (seated), left to right: Henry Tefft, American Meat Institute; Floyd E. Frazier, National Safety Council, secretary; H. F. Reinhardt, International Acetylene Association, chairman; Sidney J. Williams, NSC; Dr. E. C. Holmblad, American Association of Industrial Physicians and Surgeons; Roy Hudenburg, American Hospital Association.

Representatives of some 20 trade and industry associations met at National Safety Council headquarters recently to plan a program to promote safety activities through associations.

H. F. Reinhard of the International Acetylene Association presided. He pointed to the accomplishments of a number of organizations which have led the way to outstanding records in accident prevention in their industries. He said that associations can play an important part in reducing industrial accidents because they have the facilities to reach the smaller businesses.

Smaller business is of major importance in the safety movement because it represents a large segment of industry, has a proportionately high share of industrial accidents, and has not, in the main, taken an active part in the safety movement.

The committee reviewed the draft of a booklet which will be used as the basis for discussions with local association groups at regional meetings. At these meetings, plans will be developed for promoting safety programs for local business concerns through association sponsorship and for coordinating the efforts of associations with the work of the National Safety Council and its local chapters.

Atomic Energy Brings New Industrial Hazards

Increasing peacetime use of atomic energy is introducing new hazards in American industry, the National Board of Fire Underwriters reports.

A committee of specialists representing the fire insurance and marine insurance businesses is studying these potential hazards the National Board stated at its 84th Annual Meeting.

The committee, which was formed at the request of the Atomic Energy Commission, plans a comprehensive study of the safeguards necessary in the storage, shipment, and handling of radioactive isotopes and fissionable materials. The group will give special attention to the fire risks involved.

The research division of the engineering department of the National Board has also studied a number of other hazards to life and property during the past year.

Following the Holland Tunnel chemical fire, which was classified by safety experts as a "near-disaster," a special report was issued on the problems arising from the transportation of dangerous chemicals and other hazardous materials over the nation's highways and through vehicular tunnels.

As a result of the attention centered on this problem, the New York and New Jersey state legislatures have enacted suitable laws for more rigid regulations to control tunnel traffic. Improved enforcement of safety regulations is now being studied.

The research division has completed a report on the causes of cotton fires and has recommended means of curbing the heavy losses which have resulted from these fires in recent years. A vigorous fire prevention campaign during the coming season has been planned by various nation-wide groups interested in the problem on the basis of this report.

Other studies were made of the ammonium nitrate problem, the hazards connected with industrial drying ovens and the hazards associated with 30 chemical industries.

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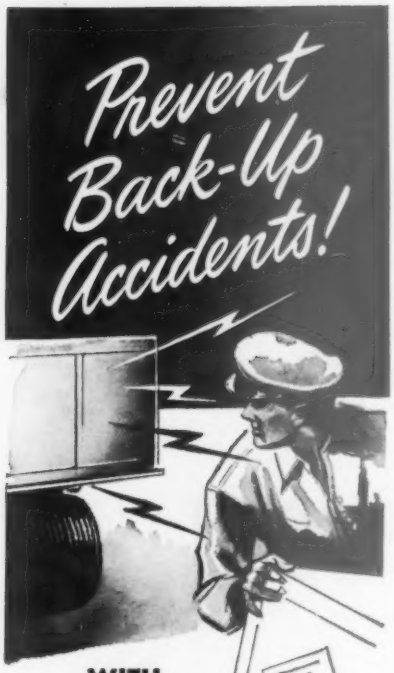

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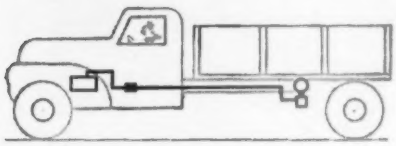

Reversalarm mounts near the rear of the truck... sounds a sharp warning gong with the first 8 inches of backward motion—*with or without truck motor running!* Single stroke, low current gong employs automatic interrupter switch that connects on transmission speedometer cable take-off. Easy to install... weatherproof, rugged construction... operates on 6 or 12-V systems.

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THE HONOR ROLL

Records of operation exceeding 500,000 man-hours, or one year, if exposure exceeds 250,000 man-hours, without a disabling (lost-time) injury are invited.

AiResearch Manufacturing Co.

Los Angeles, Calif.—May 25, 1949 to Sept. 7, 1949; 1,211,793 man-hours; January 24, 1950 to May 1, 1950; 1,185,098 man-hours; continuing.

Alan Wood Steel Co.

Blast Furnace Division, Conshohocken, Pa.—November 2, 1948 to March 24, 1950; 800,000 man-hours.

Aluminum Co. of America

Fabricating Works, Massena, N. Y.—January 26, 1950 to April 12, 1950; 3,200 employees; 1,291,363 man-hours.

American Woolen Co.

Bradford Mills, Louisville, Ky.—September 10, 1948 to April 30, 1950; 1,134,771 man-hours, continuing.

Baldwin Locomotive Works

Tool Room, Philadelphia, Pa.—March 1, 1949 to May 22, 1950; 500,123 man-hours, continuing.

Brown Corp.

La Tugue, P. Q., Canada—July 12, 1949 to March 10, 1950; 1,315,270 man-hours.

Continental Can Co.

Syracuse Machine Shop, Plant #0, Syracuse, N. Y.—August 1, 1949 to March 20, 1950; 807,409 man-hours.

Corkran, Hill & Co., Inc.

Baltimore, Md.—714 days, 2,047,559 man-hours.

E. I. du Pont de Nemours & Co.

Martinsville Plant—24,167,648 man-hours, continuing.

Wilmington Shops—5,598,623 man-hours, continuing.

Imperial Glass Corp.

Bellaire, Ohio—May 17, 1949 to March 16, 1950; 864,984 man-hours, continuing.

New Orleans Public Service, Inc.

Engineering Dept.—October 1, 1941 to May 17, 1950; 60 employees; 1,000,000 man-hours, continuing.

Entire Railway Dept.—December 14, 1949 to April 25, 1950; 1,664 employees; 1,376,722 man-hours.

Railway Transportation Div.—November 15, 1949 to April 27, 1950; 1,298 employees; 1,329,362 man-hours.

Oil Well Supply Co.

Wilson-Snyder Mfg. Div.—Braddock, Pa.—June 15, 1945 to April 30, 1950; 3,284,722 man-hours.

Pittsburgh Plate Glass Co.

Springdale Paint Plant—November 6, 1947 to April 30, 1950; 154 employees; 762,026 man-hours, continuing.

Procter and Gamble Co.

Chicago Plant—1,221,871 man-hours, continuing.

Longbeach Plant—2,184,524 man-hours continuing.

The Pure Oil Co.

Smiths Bluff Refinery, Nederland, Tex.—537,863 man-hours, continuing.

Racquette River Paper Co.

Potsdam, N. Y.—448 employees; 501,436 man-hours.

U. S. Atomic Energy Comm.

Bendix Aviation Corp., Kansas City, Mo.—131 days; 1,019,562 man-hours, continuing.

Los Angeles, Calif.—761 days, 272,322 man-hours, continuing.

R. M. Parsons Co., Los Alamos, N. Mex.—551 days; 342,662 man-hours, continuing.

W. C. Kruger & Associates, Los Alamos, N. Mex.—753 days; 505,546 man-hours, continuing.

U. S. Dept. of Agriculture

Mississippi National Forests, Jackson, Miss.—February 10, 1949 to February 1, 1950; 515,000 man-hours.

U. S. Steel Corp.

National Tube Co., Pittsburgh, Pa.—September 7, 1949 to February 28, 1950; 6,756 employees; 4,949,404 man-hours.

Wright Aeronautical Corp.

Wood-Ridge, N. J.—April 22, 1950 to May 31, 1950; 1,184,754 man-hours, continuing.

Calendar Contest Winners For May

First prize in the National Safety Council's Safety Calendar Contest goes this month to Mrs. Henrietta Thurman, of Phoenix, Ariz. The theme in this contest was safe handling of materials. Mrs. Thurman's two-line rhyme was adjudged best of all those submitted. It was:

Pa led with his nose, Ma's step was amiss.
NOT the load, but their MODE was their Nemesis.

Second prize went to Millard Palmquist, U. S. Rubber Co., Detroit, Mich., for this rhyme:

KNOW how to lift, SEE where you go,
Are safety rules you ought to know.

Third prize was awarded to Mrs. Bea Priest, Clintonville, Wis., for the following rhyme:

Poor judgment, poor planning, poor vision,
Three reasons that caused this collision.

Thirty $5 awards were issued to:

Mrs. Paul Crary, Spokane, Wash.

Thomas J. Tule, Runnemede, N. J.

Mrs. W. N. Sanders, Bessemer, Ala.

Mrs. Lyle E. Peterson, Provo, Utah

William A. Woodworth, Jr., boiler operator, Pennsylvania Power Co., New Castle, Pa.

Mrs. A. Schipper, South Bend, Ind.

S. Benedict, Berkeley, Cal.

Walter M. Sult, Berwick, Pa.

Mrs. B. Maier, bookkeeper, Olson Radio Warehouse, Cleveland, Ohio

Nancilu Wood, E. I. du Pont de Nemours & Co., Chattanooga, Tenn.

Frances A. Hansenbauer, Hollis, L. I., N. Y.

Mary Fulton, Amboy, Ill.

Carol Blanchard, Gloucester, Mass.

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Victor Nichols, railway mail clerk, Albany, N. Y.

Corder Glasgow, clerk, Texas Employment Commission, Austin, Tex.

Tony Mosca, Socony-Vacuum Oil Co., Inc., East Chicago, Ind.

Virginia M. Davis, stenographer, New England Power Service Co., Boston, Mass.

Genevieve Taylor, stenographer, Harper-Meggee, Inc., Portland, Ore.

Mrs. Don Parkinson, Dallas, Tex.

Mrs. Warren Hoogs, Glen Rock, N. J.

James W. Adam, General Stores, The Steel Co. of Canada, Ltd., Hamilton, Ont., Canada

Ruth Paris, stenographer, Craddock Terry Shoe Corp., Lynchburg, Va.

Mrs. W. J. Jones, business school teacher, Catherman's Business School, Cumberland, Md.

Frank Cowan, chief engineer, Arnold Bros., Inc., Perry, Ia.

Ernest W. Case, mail clerk, Akron, Ohio

Albert May, Rheem Mfg. Co., Bayonne, N. J.

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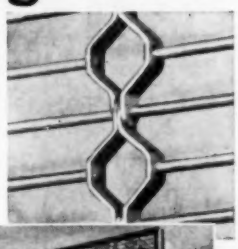
ATTRACTIVE
ALL-STEEL
Protection
that doesn't cut off light, air or vision

Kinnear Steel Rolling Grilles
For Windows, Doorways, Corridors



This all-metal barricade guards any opening with a curtain of rugged steel rounds and links. Yet it doesn't cut off light, doesn't block vision, doesn't impede ventilation. It can be lowered into place or raised out of the way in a matter of seconds! It offers convenient protection without loss of architectural beauty. As the pictures here testify, it's the ideal way to prevent trespassing in areas where the public assembles, or wherever it is desirable to block off certain sections of a building.

Kinnear Rolling Grilles open straight upward and coil into a small, out-of-the-way space above the opening. No usable floor or wall space is wasted. In many installations, the mechanism on which the Grilles coil when opened can be concealed within the lintel construction.

Kinnear Rolling Grilles are made to fit any size window, doorway, corridor, stair-well, elevator shaft or other opening. They can be equipped to operate manually, mechanically (by chain or crank) or electrically. Easily installed in old or new buildings. Write for complete details.

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ROLLING GRILLES

"WOVEN-Gards"

BETTER HAND PROTECTION
at amazing low cost

"Woven-Gards" are hand protectors, mitts, pads and sleeves made of a new safety material. They provide flexibility, comfort, resistance to abrasion and cutting far beyond that of anything used before. They are extremely oil-absorbent and do an excellent job when handling oily, slippery sheets. The porous weave makes them one of the finest protectors for handling lower temperatures. Enthusiastic users say they have never seen values like "Woven-Gards." Excellent protection at lowest cost. Send now for descriptive folder and prices.

Industrial Gloves Co.
1727 Garfield St., Danville, Ill.
(In Canada: Safety Supply Co., Toronto)

INDUSTRIAL Safety Apparel

Paper Mills, Cornwall, Ont., Canada
James T. Rundle, inspection 12"-10" Mill, The Steel Co., of Canada, Ltd., Hamilton, Ont., Canada

A new contest is offered each month through the safety calender.

Marcus Dow, NSC Past-President, Dies

MARCUS A. DOW, president of the National Safety Council, 1922-23, and formerly manager of safety and personnel for Greyhound Lines, died June 13 in Hollywood, Calif. He was 72 years old.

From 1913 to 1923, Mr. Dow was general safety agent for the

MARCUS A. DOW
1878-1950

New York Central Lines. For two years he was executive secretary of the Bureau of Public Safety of the New York City Police Department and he became manager of safety and personnel for the Greyhound Lines in 1929. Failing health compelled his retirement in 1941.

Mr. Dow was one of the organizers of the National Safety Council's Railroad Section and served as general chairman, 1914-16. Throughout his active career he held many offices in the National Safety Council. He was third vice-president, 1916-17; president, 1922-23; vice-president for public safety, 1923-24. From 1915 to 1942 he was a member of the Executive Committee. While with Greyhound he was active in the Taxicab and Fleet Owners (now Commercial Vehicle) Section, which he served as general chairman, 1931-32, and in the Transit Section.

COMING EVENTS

In the Field of Safety

June 30-July 2, Chicago

American Association of Railway Surgeons. (Drake Hotel). Chester C. Guy, M.D., secretary, 547 West Jackson Blvd., Chicago 6.

Sept. 14-15, York Harbor, Me.

Twenty-third Annual Maine State Safety Conference. (Marshall House). A. F. Minchin, director, Industrial Safety Division, Department of Labor and Industry. Augusta, Me.

September 19-21, Cleveland, O.

Twelfth Annual Ohio State Safety Conference. (Hotel Carter). Carl L. Smith, secretary-treasurer, Suite 508, 2073 E. 9th St., Cleveland 15, Ohio.

Oct. 16-20, Chicago

Thirty-eighth National Safety Congress and Exposition. (Stevens Hotel). R. L. Forney, general secretary, National Safety Council, 425 North Michigan Ave., Chicago 11.

The Reader's Point of View

Comments on topics of current interest are always welcome. They need not agree with the opinions of the editors.

Qualified Amateurs

NIAGARA FALLS, N. Y.—To the letter on "Qualified Amateurs" in the May NEWS, Amen! Especially paragraphs six and seven.

I anticipated the author before I turned the page.

C. M. OLSON

Yardsticks

TORONTO, ONT.—In the May NEWS another exponent of a long-winded formula to connect the frequency rate and the severity rate together in a single equation sets forth his ideas on how to juggle a rate that would tend to show a firm having a better performance than was actually the case.

The frequency rate, as used at

the present time, is the only sound means by which any sensible comparison could be made of company performance. The purpose of accident prevention is to prevent personal injuries, not to scheme a way to doctor a favorable rate once the accident has happened.

If two men working on a scaffold which breaks fall to a lower level and one suffers a broken leg while the other suffers fatal injuries, why argue about severity? The meat of the story is that the scaffold was faulty and could easily have claimed two lives. Once the accident occurs, it is beyond our power to control the severity.

Let's get on with the job of preventing injuries by using our "know-how" and the three "E's." The man who suffers the injury or the widow and children who are left without a provider don't care a hoot in Hades for a new fangled "performance rate."

O. C. Good

Contest Seeks Best Safety Devices

The best safety devices developed in the pulp and paper industry will be honored at the conclusion of a year-long contest which begins this month. Sponsored by the National Safety Council in cooperation with *The Paper Industry*, published by Fritz Publications, the contest is open to all companies in the industry.

Five awards will be made, one for the best device applying to each of the following sections of the industry:

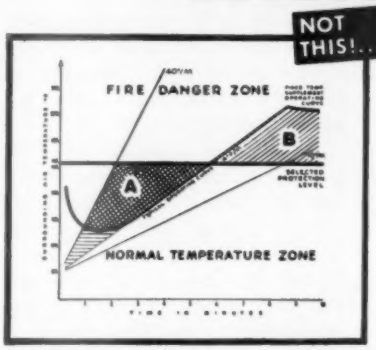
1. Logging
2. Pulp
3. Paper
4. Paperboard
5. Converting.

Under the rules, a device must be a tangible thing such as an attachment to a machine or to other objects in the working environment. New ideas involving merely a change in methods of work are not eligible, nor are advertising apparatus, exhibits, etc.

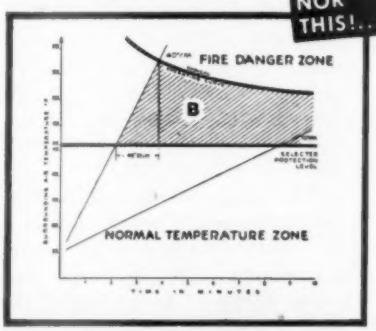
To be eligible for an award, the device must be originated by someone in the company submitting the entry. It cannot be a commercial device developed by one

When seconds may mean lives!...

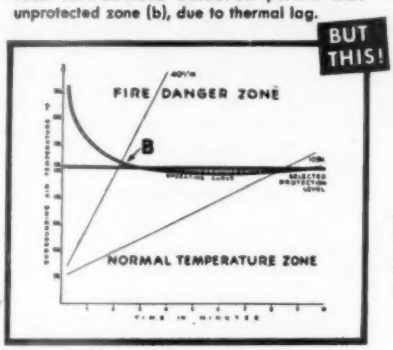
DETECT-A-FIRE



RATE-OF-RISE DETECTOR has dangerous false alarm zone (a), and unprotected zone (b), even with fixed-temperature supplement.



FIXED-TEMPERATURE DETECTOR permits wide unprotected zone (b), due to thermal lag.



DETECT-A-FIRE'S instant response leaves only negligible unprotected zone (b), eliminates false-alarming.

Fastest-Acting, Most Fully Protective Device In The Field... Warns You In Time!

DETECT-A-FIRE operates on the exclusive Fenwal principle. Activating element is the *single-metal*, temperature-sensitive shell which, in direct contact with the air, reacts without lag. Approved by Factory Mutual Laboratories, listed by Underwriters' Laboratories, Inc., for ordinary and hazardous locations Class I, Groups C and D; Class II, Groups E, F and G for 25′ spacing.

Fenwal

DETECT-A-FIRE

Combines Fixed-Temperature Response with Rate-Of-Rise Compensation for Instant Alarm

SENSITIVE...
but only to heat

FREE bulletin gives you complete details on amazing Detect-A-Fire. See how you, too, can improve your fire alarm and extinguishing systems. Just mail coupon.

NAME.....POSITION.....
COMPANY.....
STREET.....
CITY.....ZONE.....STATE.....

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Temperature Control Engineers

gives complete protection from

ABRASION · OILS & GREASES
HEAT · SALT WATER · ALKALIS
ACIDS · OTHER CHEMICALS

Sawyer's Neoprene Latex Protective Clothing is *not* made from ready-made fabrics but from the highest quality base fabrics coated inside and out with Sawyer's own industry-approved and tested Neoprene Latex. There is no finer protective clothing on the market than Sawyer's Frog Brand. Write for illustrated catalog and detailed price lists.

Illustrated above: Sawyer's Neoprene Latex Industrial suit; jacket, Bib-style pants, hat . . . available in black or yellow . . . also in economical oiled or rubberized fabrics. Furnished also in aprons with and without stomach patch.

The H. M. SAWYER & SON CO.
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Cambridge 41, Mass.

of the safety equipment manufacturers.

The device must have been in use for six months before it is entered in the contest, but must *not* have been in use before July 1, 1948. Evidence should be submitted to show that the device has materially reduced accidents. The device need not have been designed primarily for the prevention of accidents, but its effect for safety must be substantial.

A certificate award will be given by *The Paper Industry* to one participant (company or plant) in each of the five groups of the contest, which, in the opinion of the judges, has submitted the best device. Individuals responsible for the development of the device will be mentioned in the certificate if the company so requests. Honorable mention in National Safety Council publications and in *The Paper Industry* will be given to second and third place winners in each group. Awards will be presented at the National Safety Congress in Chicago in October, 1951.

The entries will be judged by a committee consisting of an executive of the National Safety Council, who will be chairman; one safety specialist from each of the five divisions of the industry; and one independent safety specialist.

Entries may be submitted at any time from now to August 1, 1951. For entry blanks and detailed rules, write the National Safety Council, Chicago 11, Ill.

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Safety Engineer with 20 years experience in construction, mining, tunneling and traffic, desires permanent position any location in United States. Married. Excellent record and references. Member American Society of Safety Engineers. Address Box 407, NATIONAL SAFETY NEWS.

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Covers Industrial Safety and Health and Automotive and Public Safety. Contains approximately 1,500 booklets and pamphlets, 1,000 magazine clippings and 75 books. Includes publications from all important sources. Can be obtained at less than the purchase price of the publications. You pay nothing for the thousands of hours spent in building and indexing the Library. For detailed information address Box 406, NATIONAL SAFETY NEWS.

Gases Under Pressure

(From page 35)

on low-pressure liquefied gas, but since the pressure in the container may become excessive below 212° F., only the 165° fusible metal backing is permitted.

Most of these devices have stood the test of time, and although none can claim perfection, certainly the record is good. However, advances in our manufacturing skill, better tools, and better materials of construction, have warranted a review and revision of the 1936 Safety Device Schedule by the Safety Device Committee, with a view to still better performance in the future. More important is the inclusion in the revision of provision for the many new compressed gases and mixtures introduced during the last decade.

Although the primary purpose of the safety relief device on an I.C.C. container is to protect against cylinder failure during transportation, the ideal device would be one that affords protection under any special circumstances occurring at other times. This is being taken into consideration by the Safety Device Committee.

One of the most difficult problems a designer faces is the sizing of a safety relief device. The record shows that our 1936 minimum figure of 0.0012 sq. in. of discharge channel area per lb. water capacity of container for non-liquefied gases, and twice that figure for liquefied gas, is sufficient. To be certain that a safety relief device discharges at the rate calculated, flow test requirements are being proposed by the committee. These tests will be particularly useful in the case of the spring-loaded safety relief valve and any of the other devices where area calculations are impossible and where restrictions to flow exist.

Unless there has been previous experience, the fire test seems to be the only means at our disposal to evaluate a safety relief device readily and to determine its efficiency in satisfactorily venting a particular compressed gas con-

tainer and its permissible charge of a particular compressed gas. On this account, the Safety Device Committee has agreed to establish the fire test as the basis for approval. The committee also was of the opinion that a standard fire test should be prescribed, due to the many variables encountered in such a test. A standard fire test would assure more consistent and accurate appraisal when any new combination of container, contents, and safety relief device is introduced.

Problems of New Containers

I should like to review some of the safety relief device problems confronting us with the introduction of the larger containers, namely, the portable tank container and the cargo tank, whose volumes exceed 1,000 lb. water capacity. Again the device must protect the container against rupture in a fire encountered in transportation. We must remember that many of the compressed gases to be shipped in these containers are flammable liquefied gases, and that the indiscriminate discharge of large quantities of these gases is not desirable due to the added damage it would cause. The spring-loaded safety relief valve appears to be the most suitable device for containers whose volumes exceed 1,000 lb. water capacity because the amount of gas released would depend upon the intensity of the fire.

The sizing of the device on these larger containers and tanks is the real problem, even though there are a number of codes which specify discharge capacities for safety valves on similar vessels. The Unfired Pressure Vessel Code of the A.S.M.E. requires a discharge capacity which will assure a pressure, while the safety valve is operating, not to exceed 110 per cent of the maximum allowable working pressure. Such a specification is simple to correlate to valve size when there is just the maximum compressor discharge to take into account, but not so simple where the pressure increase is due to involvement in a fire. More recently, however, the 1950 Edition of this code has increased this 110 per cent figure to 120 per cent when

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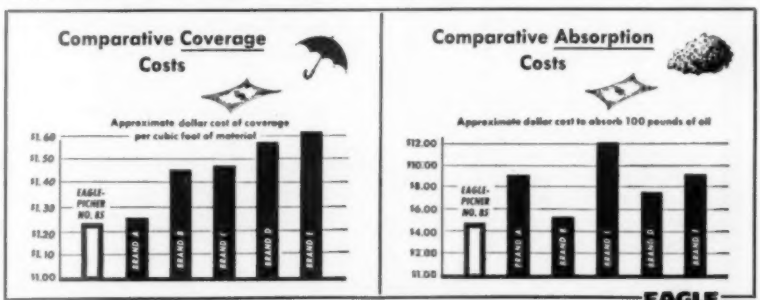
Speed-light Photo by J. H. Brown

Eagle-Picher Industrial Floor Dry No. 85... tops for safety, efficiency and economy!

1. This extremely lightweight, non-combustible, granular mineral compound, sharply reduces the dangers of slipping on wet, oily floors.
2. It retains its granular form even when saturated with liquids because it is chemically inert—insoluble in oil, water or other liquids. Consequently it retains its anti-slip effectiveness for *longer* periods.
3. It can easily be applied by hand, shovel or by mechanical means. Its light color helps brighten dark work areas, resulting in added safety. Packed in 50-pound, multi-wall Kraft paper bags.

Tests prove its performance

Eagle-Picher Industrial Floor Dry No. 85 outperforms five other leading compounds



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SCOTCH
SNAP

A revolutionary multiple purpose snap for hoisting material to the pole top. Makes possible an endless hand line, eliminating the tieing of knots. Designed so it can not catch on service wires while raising or lowering. Tested to 2500 lbs. between eyes and 1000 lbs. on each hook and upper eye. Write for details!

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the vessel is vulnerable to fire. This 1950 code also requires that safety valves over ½ in. pipe size be marked with the set pressure and the capacity, expressed in steam or air flow. An appendix provides a method of conversion of the steam or air flows to flow of other common gases and vapors. All of these requirements and data help a designer provide a more suitable safety relief device.

The Liquefied Petroleum Gas Association took a most progressive step a few years ago when they required that safety valves on propane storage tanks have a discharge capacity related to the dimensions of the tank. Previously, the actual free discharge area based on Fetterly's Formula was specified, but it was found that the discharge capacity depended a great deal on construction details of the safety valve. The use of Fetterly's Formula to determine actual free discharge areas was a long calculation in itself, after which this area was converted to flow. In these calculations, many disputable assumptions were made, and it was necessary to have available many data for the particular gas. It entailed an enormous amount of work to convert the table of areas shown a few years ago in National Board of Fire Underwriters Pamphlet No. 58 to the table of discharge capacities shown today in the current pamphlet. You can imagine what a task lies ahead if we are to do the job in this manner for the additional gases.

It would appear that we must find a more direct approach to the problem. As proposed by Mr. Varnes over a year ago, the problem in the case of liquefied gases is reduced to a determination of a rate of heat input and the resultant rate of vaporization of the liquid at a safe discharge pressure. The rate of vaporization establishes the minimum required discharge capacity.

The rate of heat input will probably be the most difficult figure to obtain. However, reasonably accurate theoretical calculation can be made and checked by actual test. The rate of vaporization is the latent heat of vaporization data which are probably available in the literature.

For the gases which are entirely in vapor form at the discharge pressures of the safety valve, the problem is somewhat different. Once a rate of heat input is established, the rate of volume increase at a safe discharge pressure will establish the minimum discharge capacity of the safety valve.

In summary, it can be said that the 1936 Safety Device Schedule has very adequately served its purpose, but advances made in the compressed gas industry, including the introduction of gases new to industry and a greater variety of containers, warrant a revision of this schedule. Additional problems are encountered since the use of the gases has become more widespread and varied. The compressed gas industry now has more and better materials and tools to work with and there are more better-trained engineers to put them to use. The modern safety relief devices reflect these advances and will no doubt continue to do so in the future.

Grandstand Developments In Revised Code

New developments in grandstand construction are recognized in the latest edition of the American Standard for Places of Outdoor Assembly, Grandstands and Tents (Z20.3-1950) just announced by the American Standards Association. This standard adopts, by reference, the latest industry specifications for light-gage steel, for stress-grade lumber, and also permits use of steel pipe and tubular steel members in grandstands. Specifications for two new types of seating arrangements are now incorporated into the standard—the foldable-type grandstand, and the trailer-mounted-seating arrangement used by the circus industry.

This standard is a revision and synthesis of two previous American Standards—Portable Steel and Wood Grandstands, Z20.1-1941, and Places of Outdoor Assembly, Grandstands and Tents, Z20.2-1949.

A question of interpretation of the requirements for the width of aisles arose after publication of the previous edition. This is clarified

in the appendix of the present standard, in order to aid enforcement officials. The standard itself states that distance from any seat to the nearest exit on the seating area shall not be more than 150 feet. Recognizing the variation in size and shape of different permanent structures this section is now interpreted to mean that "persons shall be able to get out of any threatened area by traveling not more than 150 feet."

This standard was sponsored by the National Fire Protection Association and the Building Officials Conference of America.

Safety Panel

(From page 27)

and with official and nonofficial agencies in developing and conducting community-wide safety programs.

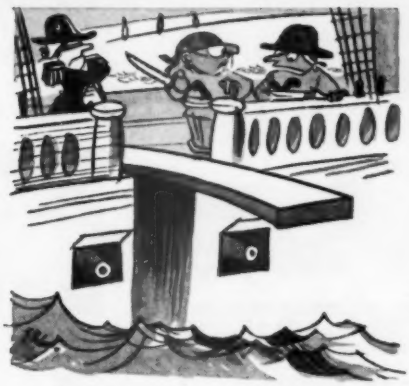
MR. CORLL:

I think we have tried nearly everything possible through posters, pamphlets, employee publications, committees, demonstrations, and literally hundreds of meetings. Recently I had the pleasure of being narrator for the Jefferson County, Ohio, Industrial Safety Council forum on the air on the subject of off-the-job safety.

I have come to this conclusion: that we Americans are a great lot of gamblers. By that I do not refer necessarily to cards, dice and horses, but we do like to take chances. We are conceited and think it can't happen to us. You and I know that all of us who drive cars "beat the light" at some time or other, thinking it can't happen to us. But we all know it happens to somebody every few seconds.

We think we have better reflexes than Joe or Bill, and that we can get by. Yet we know that a lot of us don't. It seems terrible that we literally have to beg people not to do this or that to save themselves from injury or death. Again I say that a lot of us in our less careful moments do the very things we warn others against.

Therefore, I feel that we must



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For greater safety under foot, in your plant and on your products

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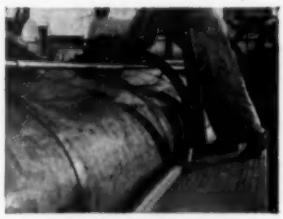

Safe Footing

Easy To Fabricate

Easy Assembly

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NON-SLIP ABRASIVE PAINT

Eliminate danger zones overnight with one quick, low cost application of SURE-FOOT, the easy and inexpensive way to provide maximum safety for both foot and light wheeled traffic. SURE-FOOT'S positive traction remains non-slip, wet or dry, on all wood, metal and concrete surfaces.

EASY TO APPLY

SURE-FOOT spreads like ordinary paint on any clean dry surface. No formulas to mix and no special tools or skilled workmen required in its easy application.

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Low in initial cost, SURE-FOOT offers excellent one coat coverage . . . costs less than 10c per sq. ft. installed.

LONG LIFE

Tough, traffic resistant carbide crystals form the abrasive content in SURE-FOOT, assuring a non-slip surface at all times. SURE-FOOT is fire retardent and prevents surface deterioration.

Write today . .

to Dept. B for free bulletin showing how you can eliminate slippery conditions and improve plant efficiency.

Frost PAINT AND OIL CORPORATION

MINNEAPOLIS 13, MINNESOTA

keep on having meetings, using pamphlets, posters and other aids, and keep up a continuous drive to keep everybody safety conscious every second.

MR. JACOBY:

Industry should do everything it can to establish on the part of its employees an awareness of safety, an attitude toward safety, and the habit of doing things safely so that this awareness, attitude and habit will be manifest in the off-the-job activities of the employee just as much as they are while he is at work. Industry is placing increased emphasis upon this very problem, as may be seen from the following specific examples of some of the things which are being done within one company:

1. In General Motors we stress the fundamental importance of having each of our foremen talk with two of his employees every day on the subject of safety. These talks have been primarily concerned with safety on the job, but in recent years increased attention has been given to bringing off-the-job safety into these discussions.

2. The information racks, introduced by the Employee Relations Staff in February, 1949, have provided an excellent medium for carrying the safety message to employees. Over a period of 15 months some 18 pamphlets, or about 20 per cent of the total number distributed, were related to health and safety. Surveys show that employees are interested in this material, and this interest is further indicated by the fact that they have voluntarily taken from the racks some 2,000,000 copies of these 18 pamphlets.

3. The new sound motion picture "Safe As You Think" was produced by General Motors for the purpose of emphasizing a very basic and fundamental principle, and the applicability of this principle to off-the-job safety is stressed, as well as that in the plant.

Other films relating to safety in the home, in the schools, on the farm and on the highways which have been produced for General Motors in recent years have been shown to millions of people, both inside and outside of our plants.

Furthermore, industrial companies help in other ways in the prevention of off-the-job accidents. It is these companies which supply much of the money to support the National Safety Council, the local safety councils and similar organizations, which do such effective work in promoting off-the-job safety.

Then, too, the voluntary work which is performed by the boards of directors and committees of these safety organizations is done in large part by the executives, safety directors, engineers and technicians of industrial companies.

MR. KIMBALL:

As the railroad operates 24 hours a day, including Sundays and holidays, it is essential that all phases of our safety program be effective on a 'round-the-clock basis.

To reach all employees on all shifts, we conduct joint men and management meetings both on and off the job during the 24-hour period. Programs deal with safety on the job, in the home, on the highway, in the school—in fact, in all places where people may meet with accidents.

We hold family night meetings with appropriate programs which include sound motion pictures, slidefilms, and discussion of safety problems everywhere.

Our program includes participation in regional, state and local safety programs and cooperation with public officials, enforcement agencies, school authorities and others concerned with accident prevention.

In our off-the-job safety programs among employees and their families and representatives of the public, several hundred safety meetings were held during the past year. These meetings were

held along the 8,000 miles of our railroad, covering 13 states and hundreds of cities, towns and villages. Attendance ran into the thousands.

We also participate in radio safety broadcasts throughout the territory served by our railroad.

We distribute annually many thousand copies of pamphlets, bulletins, posters and other materials.

MR. MINER:

1. Summarizing the off-the-job accidents and making the information available to the whole organization.

2. Publishing the causes and ways of preventing such accidents in the safety bulletins and company magazines with proper timing of seasonable accidents. (Vacations, poison ivy, sunburn, etc.).

3. Including off-the-job accident material as subjects in some of the posters.

4. Teaching foremen how to conduct meetings and supplying them with suitable material relative to off-the job accidents.

5. Showing motion pictures, slide films, safetygraphs and other visual aids which relate to the subject at employee meetings.

6. Making first-aid training a requirement for every plant employee.

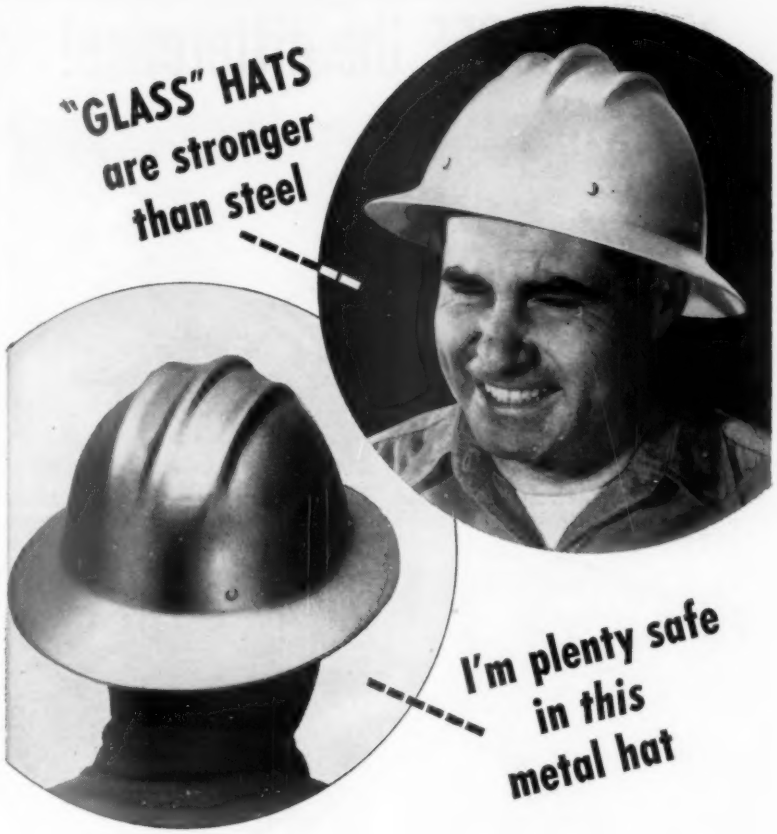
7. Continually emphasizing through every available means that true safety is a state of mind and that "The Life You Save May Be Your Own," (or one of your own).

8. Supporting the community programs in their endeavors to combat accidents on streets and highways, at home and while enjoying recreation.

MR. MASEK:

Off-the-job accidents is a topic that is often given the old platitude treatment and very little else. We are told that there is a big carry over from an industrial program that helps to reduce accidents after hours.

Whether or not this carry over



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HARD BOILED* HAT

protection can't be beat

Now you can get the famous Bullard shock-absorbing safety hat design in either molded Fiberglas or special alloy aluminum. Unique ribbed crown is the safest ever built. Greatest protection; light weight; easiest to wear on any job.

"Glass" *Hard Boiled* Hats are available in solid molded colors and white—even a glow-in-the-dark model; passes all tests for electrical shock resistance; impact resistance; is water- and flame-resistant.

Aluminum *Hard Boiled* Hats are handsomely finished in satin-like natural metal. *Passes standard drop* tests; safe to wear where electrical shock is no hazard.

Keep your men better dressed; safer, *cooler* and more comfortable with Hard Boiled Hats.

Simplify stock problems; one size fits all heads; instantly adjustable. Six-second hammock - sweatband change. Chin straps, lamp brackets and winter liner available.

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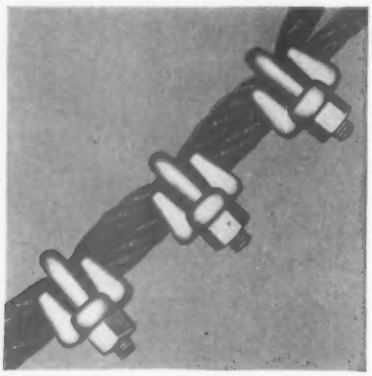
RIGHT FROM THE START. Laughlin "Fist-Grip" Safety Clips hold wire straight. No damage, no distortion. They *save* rope.

HIGHEST EFFICIENCY. In use, "Fist-Grip" Clips deliver 95% to 100% of the rated tensile strength of rope.

POOR BEGINNING. U-bolt clips pull wire rope into bowed shape when nuts are tightened, endanger safety. U-bolts *crush* rope.



FURTHER DAMAGE when in use. Note crimping between U-bolt clips when rope is under tension — leads to rope breakage.

Only Laughlin "Fist-Grip" Clips offer all these benefits

Won't crimp or crush — pre-formed or regular lay wire rope; leaves them full strength for safety and longer life.

Simple, easy to put on — saves time, manpower, can be put on faster with *any* type wrench.

100% foolproof — can't be put on backward.

Super grip — two clips do the work of three.

Extra strength and safety — only type clip where entire clip, including bolts, is drop-forged.

Distributed through mine, mill and oil field supply houses. Write for Laughlin Catalog #145 for complete data on industrial fittings. The Thomas Laughlin Company, Dept. 9, Portland 6, Maine.

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THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS

exists will depend on the type of safety program in operation at the plant. If the plant program is confined largely to installing guards, there is not apt to be much influence on off-the-job behavior.

On the other hand, if the plant safety program is aimed at securing employee participation, it will develop in the worker a safety consciousness that he can't avoid taking home with him. It is necessary to realize that off-the-job accidents cannot be engineered out of existence to the same extent as industrial accidents. They can be avoided only by eternal vigilance on the part of the individual.

If you succeed in developing a safety-conscious individual, you are automatically making your most important contribution to the reduction of off-the-job accidents.

Specific aids that industry can contribute are:

1. Devoting a portion of the safety publicity to the subject.

2. Encouraging and promoting participation in local safety organizations on the part of employees.

3. First-aid training. It is impossible to take one of these courses and not absorb some safety consciousness.

MR. RILEY:

First of all, I think industry's primary contribution to the prevention of off-the-job accidents must be a well rounded safety program that gets the safety message across to its workers. In this way, if safety is really pushed, the workers become safety conscious.

If a person is thus imbued with this genuine spirit of safety, he carries it naturally into all his activities.

Of course, all persons aren't employed by industry. Still, industry can and does contribute much to the well-being of non-industrial people. For instance, in localities where there are local safety chapters the industries in those communities should hold memberships in the chapters. Even the mere joining helps the cause. However,

each industry should have some representative take an active part in the local safety organization to make a complete contribution. In most cases these local safety groups devote the greater part of their efforts toward home, traffic, and school safety. So by contributing cash and taking an active part in these local efforts, industry is directly aiding off-the-job accident prevention.

I believe industry should hold a membership in the National Safety Council. This is a very good way to help off-the-job safety, as much of the Council's materials, such as posters, calendars, news releases and other items have off-the-job safety as their theme. Industry's contributions to the Green Cross and memberships in the Council make the Council's work possible.

Through company publications industry has another opportunity to make a bid for off-the-job safety consciousness. Here again the National Safety Council material can be used. Facts and figures, cartoons, stories, etc., can be aimed right at off-the-job accidents. I know from personal experience that a company publication can do this. In my column in *Brake Shoe News* I frequently use off-the-job material, much of which is supplied by the National Safety Council.

Where our plants are located in metropolitan areas we enroll those plants in the local safety council, the cost being charged to our Headquarters Safety Department. In several such instances representatives from these plants are active members in the local chapter.

Like most industries, we have safety committees, first aid teams, and fire brigades. As these are changed from time to time, practically all our plant personnel get a "feeling" for safety that can't help but carry over into their off-the-job activities.

Of course much of the material used throughout our plants—posters, literature, etc., have to do with promoting off-the-job safety.

To sum up, through a well rounded, sincere safety effort by its plants, along with contribu-

Briefs on floor safety

Technical Service Department
WYANDOTTE CHEMICALS CORPORATION

Summary: *A granular mineral absorbent reduces hazards of slippage and fire caused by oily and greasy floors. Product absorbs water, oils, inks, paints, syrups, acids and alkalies.*

A good floor absorbent should be light enough to be highly absorbent but not so light that it lacks physical strength. It should not break down under traction or in contact with water, soluble oils or other liquids.

A good floor absorbent should be noncombustible. Even when soaked in oil it should not be readily flammable.

It should be chemically inert. It should not injure fabrics, wood, metal or rubber. It should not irritate the skin of those who handle it.

It should retain its original granular form. It should not cake, pack or form "mud." It should not cling to shoes where it might be "tracked" throughout the plant.

Wyandotte Zorball will absorb 90% of its own weight in oil. It will not break down in water or oil, or readily under traction. It retains a non-skid texture even when saturated.

It is noncombustible and, even when soaked in oil, is not readily flammable. It is chemically inert . . . non-injurious to floors and equipment. It will not irritate the skin.

Zorball is easy to use. It should be spread to a depth of from ¼ to ½ inch. When it becomes saturated, it may be swept up, carrying the soil with it. Where necessary, additional applications may be made.

Each application of Zorball will take up additional amounts of deeply imbedded grease and oil. Not only will safer floors result but much cleaner floors as well. If you have a problem write us.

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The same HILD Equipment performs many other plant clean-up jobs. With the Power-Scraper Attachment the HILD Floor Machine "dry-scrubs" rough, bumpy, grease-caked floors. Other attachments to wax, polish, buff, sand, grind or steel-wool floors of all kinds. The HILD Portable Vacuum "sweeps floors with air," dusts overhead pipes, cleans bins, walls, elevator shafts, etc. Get complete information!

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tions to local safety councils and active participation in their efforts, plus a membership in the National Safety Council and contributions to Green Cross drives, industry can help considerably toward off-the-job safety.

MR. SMITH:

Whether the accident occurs to an employee, on or off the job, aside from compensation payments and frequency and severity records, the loss of his services and help to his family and his employer are identical. Therefore, there is really no dividing line between *off* the job and *on* the job safety. When we emphasize safety in the home, the streets and highways, we expect to make people more alert to safety on the drill press, lathe, etc. as well. We are quite sure that this is conversly true with our industrial program.

Nevertheless, we shoot at specific hazards off the job as well as on the job. For example, when we decide against using a certain kind of material on the job because it is an extreme health hazard we urge our people not to use it off the job.

Being sincerely interested in our people's safety regardless of where they are, it follows that we must help with safety programs at local, state and national levels. Otherwise we would be giving "lip service" only and getting a free ride on the efforts of others.

We are especially interested in promoting safety at a local level, thereby helping to establish a safe community in which to live. This is best realized by working with our local safety council which is affiliated with the National Safety Council. In this organization we work with the city and county Government officials, educators, insurance companies, etc.

The point I am trying to get over is that we have to work at this off-the-job safety to get results. We must give freely of our safety engineering experience and have a right to expect a safer community.

Engineering the Plant

(From page 23)

of the cafeteria. But sometimes they include bowling alleys, country clubs, golf courses, picnic grounds, baseball diamonds, and field houses in which numerous activities are carried on.

One plant, which is located directly opposite one of the parks in a densely populated section of Chicago, has made real capital of this fact, since it affords many of the employees an opportunity for a pleasant stroll or a few innings of baseball after their lunch.

Color plays such an obvious part in any working environment that it is relatively easy to interest management in this aspect of the planning. Designers of industrial plants can give guidance based on the physical and psychological principles which form the only sound basis for functional color selection.

In the engine overhaul shop at United Air Lines' new maintenance base in San Francisco the sense of spaciousness was clearly enhanced by color treatment of the columns and the way in which all overhead piping, duct work and supports were painted to blend into the ceiling.

Lighting

The effectiveness of lighting depends, to some extent, on the color of the surrounding surfaces. Men working on the underside of planes in the huge Consolidated Vultee plant, where B-36's are being produced, benefit from the light reflected by the white cement floor.

In the new electronics plant of Western Electric, where lighting is recessed in an acoustic ceiling, individual bench lamps facilitate work on minute assemblies which require the use of magnifying glasses.

The standards for good lighting have been stepped up to spare the worker avoidable eye fatigue. Disturbing contrasts are eliminated by over-all illumination, which ranges from 25 foot-candles in some plants to in excess of 60 in others, to meet the requirements of extreme precision tasks.

Modern lighting with its relatively low heat output per unit of

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Scores of wires, stranded into 9 parts, then machine woven into an interlaced wire fabric—that is the unique patented construction which gives Tuffy extraordinary flexibility and stamina.

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Tested Strength Twice Safe Working Load Limit

Each Tuffy sling is proof-tested to twice the safe working load indicated on its metal tag. Tuffy's interlaced construction makes possible eye splices averaging 95% of fabric strength.

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Here, at last, is a light weight, plastic safety helmet, resistant to 3,000 volts of electricity, and by actual test, able to sustain 80 foot pounds under ball impact. What's more, the Paramount safety helmet is light as a feather—comfortable, waterproof, adjustable to head sizes (6½ to 8), and with enough clearance space between head and helmet crown to cushion and absorb intense impact. Genuine leather suspension band has long life and stands up under years of use.

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A miner's lamp bracket, adaptable to every type of lamp, can be furnished either on helmet or cap. Being entirely a non-conductor of electricity, this is the safest miner's helmet available.

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For increased warmth, a two piece lining with a flannelette facing is provided. The lining is sanforized, warm, and is made in a full range of head sizes.

As the producers of millions of M1 Army helmet liners, the famous Cairns-Paramount Firemen's helmet, the Army, Navy and Civilian Air Corps crash helmet for jet pilots and other air corps personnel, the Army Quartermaster Tank Corps helmet, we are specialists in this field and offer you greater protection with lighter weight.

The Paramount helmet and cap are produced under one or more of these patents—No. 2-420-522, No. 2-423-076, and other patents are pending.

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light and modern air-conditioning have made it practical to bring all kinds of metalworking and process operations together. This not only opens new opportunities for straight-line production, but provides working conditions that are superior to those encountered in any other type of building.

The mastery of the dust, fume, heat, humidity, noise and light control problems in such controlled-conditions plants has served as a stimulus to the betterment of working conditions in more conventional buildings as well.

Most of the big foundries erected recently for the larger integrated machine tool, automobile and implement companies have been designed with a view to maintaining the same high level of working conditions which prevail in their other divisions. The traditional concept of a foundry, with its dust and grime, is being eliminated by introducing real character and design on the exterior and modern dust-control equipment inside.

Mechanical ventilation, with or without air-conditioning, makes it possible to maintain comfortable working conditions in the presence of slab-heating furnaces, as was demonstrated at the original controlled-conditions plant which was designed and built for Simonds Saw & Steel Company. Concentrations of electric, oil, and gas-fired heat-treating furnaces are no problem in such plants. It's a simple matter to get rid of the heat through the roof and replace it with a supply of outside air.

Arc Welding

The increasing use of arc welding in our metalworking industries introduces other design problems. Where such operations are conducted in the presence of other workers, they present an eye hazard which must be shielded. While canvas hoods or other movable enclosures may be adequate for this purpose, they are usually eyesores and something of a nuisance. It is sometimes practical to erect tile partitions, which are shut off by rolling doors so that they require a minimum of space. The use of light-colored tile in such booths provides a working atmos-

phere which is markedly different from that encountered in most welding booths.

There is nothing new about the use of self-draining wooden decks which bridge the area between tanks in plating departments, but they, nevertheless, reflect one more way in which engineering benefits the worker.

Rough-surfaced, non-slip tile performs a kindred function in other wet process areas. In tumbling barrel departments, for instance, where such tile is surrounded by a floor trench for drainage, the units can be dumped into self-draining bin trucks, from which the liquids flow off quickly across the floor.

Control of Noise

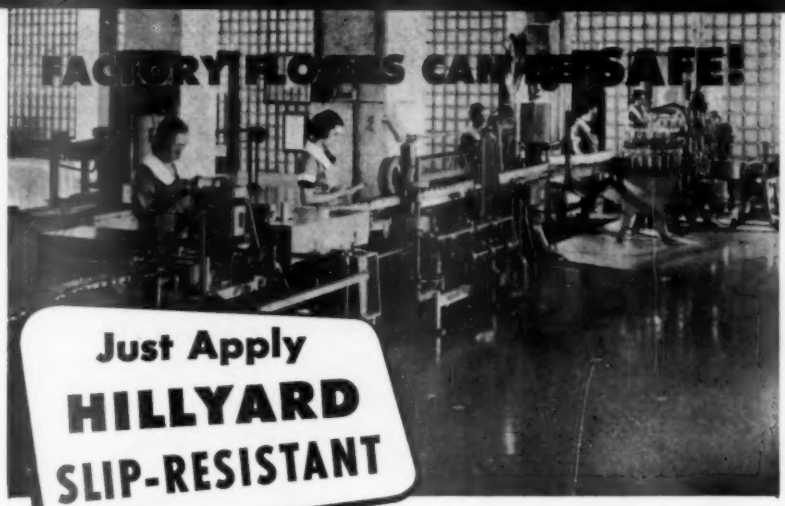
Special problems of acoustical control, created by noisy metalworking operations, have been met by the use of special isolation techniques and acoustical materials.

As a matter of fact, the control of noise created by drop hammers, sandblasting equipment and scores of grinding machines presented some of the most serious problems in designing the original controlled-conditions plant. There, we were able to cut the noise level above drop hammers and in the vicinity of cross-cut buzzing nearly 30 per cent by the use of acoustical material in the ceiling and acoustical cinder block in the sidewalls. The use of these materials and isolation techniques was sufficient to bring the over-all average noise level in the plant into the so-called "quiet zone."

The ultimate in acoustical control was probably reached in the bomber plant at Fort Worth, where cellular steel walls and roof are completely lined on the inside with sound-absorbing blankets of white Fiberglas, which was also desirable because of its high insulation and light reflection values.

Modern equipment makes it possible to control the atmospheric conditions in plants where temperature, humidity or the presence of dust make a difference. But these improvements often entail costs greater than the appropriations for a given-project.

As pioneers in the controlled-



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PLANT ACCIDENT FACTS

	DEPARTMENT	ENTS	LOST TIME ACCID	DAYS LOST	EYE	TOE	MAJOR FIRST AIDS	OTHER
1	STAMPING DEPT.	2		24	2		1	2
2	DRILL & LATHE	1		17	3		1	2
3	LABOR DEPT.	4		58	2	2		6
4	ASSEMBLY DEPT.	2		31	2	1		1
5	WELDING DEPT.	5		37	2	1	2	4
6	MACHINE SHOP	4		56	2	1		2
7	MAINTENANCE	3		42	3	2		3
8	FORGE DEPT.	5		68	2	1		4
9	YARDS & STOCK	4		25	2	3		4
10	ELECTRICAL DEPT	3		82	3	1		4
11	SHIPPING DEPT.	2		56	1	1		2
12	ORDNANCE DEPT.	8		161	3	2		5
13	FINISHING DEPT.	4		98	2	1		4
14	FOUNDRY DEPT.	6		172	3	4		6
	TOTAL	53		926	32	20		51

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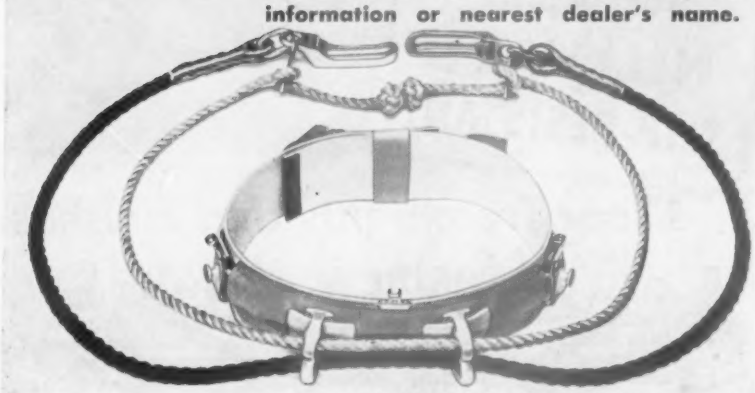

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Shock absorber safety rope of Unolyn* • Service rope and safety rope completely separate. • All fastenings requiring strength are stitched, not riveted. • Web body pad a comfortable 4" width. • Light alloy rope eyes enclose waist belt as well as both ropes. • Drop forged steel non-slip single-pass buckle. • Safety factor of 7.6 for 150 lb. rigid weight dropped 5 feet.

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Contact your nearest Jobber. If they cannot supply you, send order direct, giving Jobber's name.

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conditions idea, we were gratified by the up-grading of working conditions which came as a result of the application of these principles in so many war-time plants. The tremendous backlog of industrial construction that was awaiting release when the war ended was a real challenge to us to overcome the high cost of controlled-conditions buildings.

We first tried to eliminate, insofar as possible, the need for special air-conditioning equipment rooms and endless service piping, which can be very expensive. With more and better compact factory-built air-conditioning and ventilating units available every year, we reached the conclusion that, if we could fit such equipment right into the basic structure of a plant, costs could be reduced.

The H-section welded truss, which had been developed to accommodate an endless variety of loading patterns without resort to special structural designs, paved the way for an ideal solution. All we had to do was to design a standard platform unit which could be supported by the bottom chord of these standard structural members and on which factory-built equipment, adequate to meet any plant air-conditioning need, could be installed.

Instead of lifting the individual pieces of equipment up to the platforms one by one, we set the fans, compressors, humidification equipment, plus electrical unit sub-stations, and everything else in its proper place on the platform before raising it into position.

The savings are well illustrated by our experience at two small air-conditioned weaving mills in New Jersey. One has all of its refrigeration and air-handling machinery in a central equipment room on one side of the building, from which the conditioned air is delivered through ducts to all portions of the plant. It has columns spaced 40 feet apart, and there isn't much extra room for traffic alongside the winding machines.

Shortly after the completion of that plant we started to design the second mill, which gave us our first opportunity to apply these new principles of integrated controlled-conditions design.

We saved enough by this more advanced design and construction procedure to give the owners a far better building with spans of 80 feet instead of 40 feet and better interior appearance.

But, what about the company that couldn't justify a fully air-conditioned plant today, which had to build immediately and wanted to insure itself against the heavy absenteeism and forced shut-downs that sometimes occur because of weather conditions?

We had long since proved that the added costs of plant operation in a controlled-conditions building were partially offset by heating efficiency and concrete savings in many aspects of plant maintenance. However, we had never figured how many comparable advantages and savings could be achieved by merely altering the basic character of conventional structures.

In due course, we found that by applying the same integrated approach in plants where there was no immediate need for air-conditioning, we could give many firms a much better plant, which would actually cost them less—initially and in the long run—than the conventional monitor or sawtooth type of daylight building. When I say "better," I am talking primarily about working conditions—more comfortable temperatures and better air distribution, plus uniform lighting and the elimination of glare.

Increased Heat of Operations

In the first place, in addition to the solar heat picked up through the roof, monitors and sidewall sash, almost every well-constructed monitor-type building nowadays has to reckon with four to five times as much heat from high intensity lighting and heavy concentrations of power-driven machinery as it did 25 years ago.

Natural ventilation will not keep buildings with large floor areas comfortable during hot and sultry weather. You can't do very much to cut down heat gain through the roof by merely increasing the thickness of insulation beyond a certain point and, while roof sprays would obviously reduce the solar load, careful analysis is required to determine whether or not they are justified.

If you limit the height of sash to a mere vision slot, you can cut down total heat transmission through the sidewalls by about 20 per cent. But, while you have eliminated the glare, without depriving employees of the chance to see what the weather is like, you still have barely made a start on the basic problem of design for comfort in the summertime. You are still faced with all the heat generated by the lighting, machinery and people in the plant.

Some of this heat can be eliminated easily through special exhaust hoods over large furnaces or tanks, but such measures don't begin to meet the problem in any plant with hundreds of motor-driven machines and small furnaces, tanks and other heat-producing process equipment.

The only way to insure ventilation for greater comfort than is

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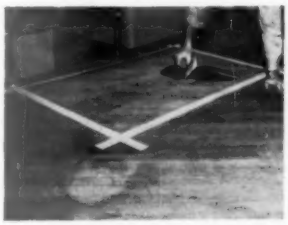
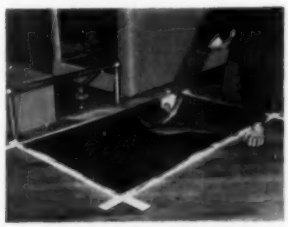
...on any floor or walking surface. First, clean floor surface until free from dirt, grease, etc. Paint does not need to be removed if it has a good bond.



For Small Areas, Mask Off—
With steel trowel, apply 1 thin coat.



Apply Second Filling Coat—
After drying first coat 1-3 hours.

Remove Masking Tape—Allow 8-10 hours drying. Then ready for use—underfoot safety assured.

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1 gal. can—$7.50 per gal.
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A Safety Feature That Pays for Itself . . . many times over

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obtained in conventional buildings is by the use of mechanical equipment. This equipment may, or may not include special machinery for cooling and humidity control. Mechanical ventilation will provide outside air throughout the building without by-passing anyone, so workers in the center of the building can be as comfortable as those around the outside. By including filters you insure a clean air supply that can't be obtained through natural ventilation.

When we compared the net cost of owning and operating the least expensive multiple monitor daylight building money can buy with that of a flat-roofed plant dependent entirely on artificial light and mechanical ventilation, we found that the flat-roofed type actually cost 2 to 5 per cent less in several specific cases. They involved areas ranging from 100,000 to 300,000 sq. ft.

While the principal impetus behind this "Better Building" design was the desire to improve working conditions in the hot summertime, it was the resulting reduction in heat loss during the average winter, north of the Mason-Dixon line, that saved enough on fuel to more than offset the nominal increase in capital investment and lighting expense.

And the more efficient use of space resulting from the wider spans and fewer columns in flat-roofed buildings has actually produced a lower over-all cost per square foot of useable space than the figures indicate.

Important as the figures are, the fact that a building like A. B. Dick Company's new plant could so easily be converted into a fully controlled-conditions building may be of even greater moment in the light of long-range plans. You can make the change without sacrificing any part of your original investment, since the equipment and controls needed for full air-conditioning can be connected with the original ventilating machinery on the existing decks.

Looking Ahead

I would like to tell you about the new plant which we are erecting for The Lincoln Electric Com-

pany, where these better building principles have been applied in a most unusual structure.

The plant is situated in the heart of a rapidly developing community of homes and at the intersection of two active bus lines. These connect with major routes nearby, two with regular express runs into downtown Cleveland and others with direct service to most of the eastern suburbs.

Plenty of room is provided to handle traffic at the plant approaches, and there is space for 1,000 cars in the two paved employee parking areas on either side of the entry building.

Once inside the entry building, everyone — production and office workers, executives, guests, salesmen and students of the welding school—will find his way down a short double stairway to a broad central passage and distribution corridor directly below the production floor. Traffic flows into the middle of the building and then in two directions along the continuous corridor which extends 1,400 feet from one end to the other.

Production workers will proceed to the locker rooms on one side of this corridor, where lavatories, toilets and shower facilities are provided. Each is assigned space in the locker room nearest to the stair leading to the plant floor at a point within 200 feet of his work.

When we first proposed this arrangement, the owner questioned the additional cost involved in the installation of such an extensive basement facility. It wasn't very hard to convince him, however, when we pointed out that six out of seven jobs which we had been called upon to do in his existing plant over the past ten years were for the removal of walls and relocation of lavatories and locker rooms on the main floor. They had had to be moved again and again to clear the way for production.

All of the employee service facilities, including a large plant cafeteria, personnel offices and medical department, are located on the lower level, adjacent to the entry corridor for maximum convenience. The two-story office is reached through a lobby and stair extending from the lower level to

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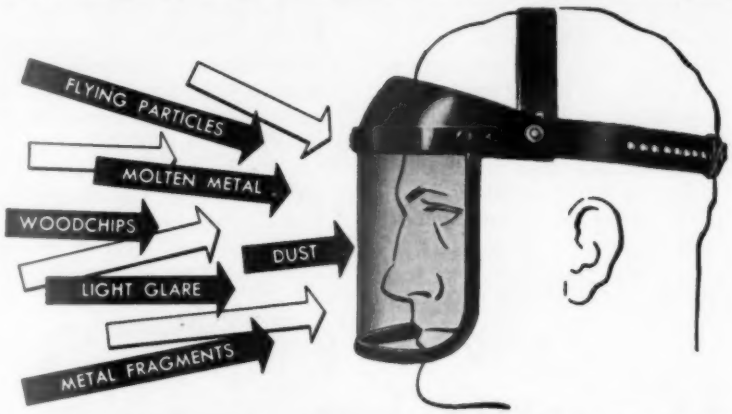

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Few ounces of weight give pounds of protection against many industrial hazards. Jackson J-1 Eyeshields weigh only 5½ ounces, have saved thousands from serious injuries and countless expense. They help to keep production flowing in many industries.

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Non-reinforced collapsible

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Ring-reinforced retractable

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the main floor, and is to be a separate controlled-conditions building entirely within the plant. The plant proper, however, will depend primarily on mechanical ventilation with localized cooling included for year-round comfort. And since all of the heating and ventilating equipment will be in standard units, supported entirely by decks like those used in our integrated controlled-conditions plants, there will be no structural problems if the management ever decides to fully condition any particular section of the plant in the future.

Meanwhile, this well-insulated enclosure — with its specially-formed aluminum siding, Fiberglas insulation and steel interior panels—will hold winter fuel cost and year-round maintenance expense to a minimum.

In analyzing all the factors that go to make up a balanced Mid-Century approach to this task of "engineering the plant for people" we find that the trends simply reflect a clearer understanding of the relation to industry of human needs. Mounting labor costs have sharpened industry's appreciation of the price it pays for absenteeism, labor turnover, and low efficiency, and management is merely taking the steps which attack these problems at their source.

Companies realize that even if every other factor necessary for profitable operation is present in their plants, the whole thing falls apart without the people required to man it. They recognize that it takes more than high pay and compliance with codes and laws concerning health and safety to make a job good. High morale and job satisfaction are important factors which are receiving the attention from management which they deserve.

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★ EXPENDABLE*
★ TRANSPARENT
★ LOW COST

*This new economical unit is discarded when the salt supply is exhausted—designed to fit the demands of small volume users and in plant locations where limited supplies are needed.

The all-clear plastic "Crystal" comes filled with 500 Enteric Coated Salt Tablets—tablets that prevent the premature salt dissolution that may cause distress to some workers. Each unit is factory sealed for utmost protection of the salt supply.

Easy to operate—just one finger on the trigger—push, click—and a tablet drops into your hand—release and the trigger cocks itself—ready for the next user. A simplified wall mounting is included with each unit.

For further information on the "Crystal" and the complete line of StaSafe and Fairway permanent type dispensers—

WRITE TODAY FOR DESCRIPTIVE BULLETIN NO. 263

STANDARD SAFETY EQUIPMENT COMPANY
232 W ONTARIO CHICAGO, ILLINOIS

Snakes

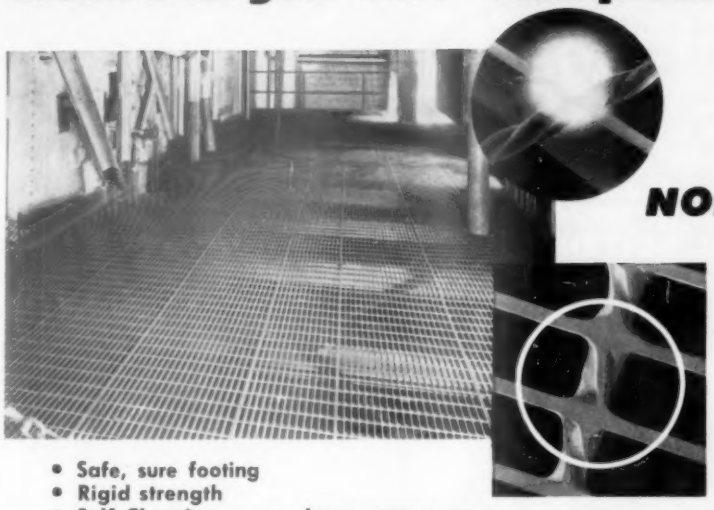
(From page 31)

snakes became so numerous in the housing and construction areas that serious consideration was given to the construction of a snake fence around the town site. However, investigation indicated that this was not feasible due to the many openings, such as roadways, utility trenches, etc., which would make the fence ineffective. Although the presence of snakes was a matter of great concern to everyone, no persons were bitten, which would indicate that the precautionary measures were effective.

Construction activities were greatly increased during the next two year period—1948 and 1949. The town site, which only a few years previous had been a wheat field, now contained housing for approximately two thousand persons, complete with power plant, telephone service, shopping center, school, church, motion picture theater, recreation hall and a first-class fire department. This town had been officially named "Pickstown," in honor of Major General Lewis A. Pick, who is now Chief of Engineers, Department of the Army.

Contracts were awarded for extensive earth work, the intake structure, tunnels and outlet works. Although many rattlesnakes were

Electroforged into one piece for STRENGTH and SAFETY



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MAXIMUM safety and exceptional load bearing strength . . . that's the ideal combination you get in Blaw-Knox *electroforged* Steel Grating. Fabricated into one solid, permanently fused piece, each individual joint is electrically forged together in a union that is actually stronger than the surrounding metal! The twisted bar construction, with slightly roughened surfaces, gives a firm grip on shoe soles, makes slipping impossible even under wet, greasy or icy conditions. Write for Bulletin 2296 today.

- Safe, sure footing
- Rigid strength
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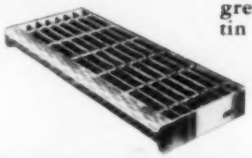

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WITH HEXACHLOROPHENE (G-11)

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ATHLETE'S FOOT
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SAFE, NON-POISONOUS SKIN TOUGHENING TO COUNTERACT THE SOFTENING EFFECTS OF WEARING SHOES

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BATHERS LIKE ONOX
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We would like to send you the simple details of the ONOX method now used by hundreds of institutions—coast to coast.

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WAREHOUSES: BROOKLYN, CLEVELAND, NEW ORLEANS, LOS ANGELES

Important: Did you note the "Radical reversal of medical teaching" in TIME Magazine? A report based on 10 years observation by 91 U. S. Skin Specialists calls Foot Baths "Futile"—"Illogical"—"Potentially harmful." Onox on the other hand is a safe, non-poisonous skin toughener. IT STEPS UP RESISTANCE . . . INSTEAD OF BREAKING IT DOWN! Try the Onox way. You'll be surprised!
(Copy of TIME article sent on request.)

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seen in the town site during this period and many were caught in traps each spring, it seemed that their frequence in the various areas was on the decline. Fewer rattlers were seen in 1948 than in 1947 and still fewer in 1949. This, however, should not imply that the snake problem has been solved in its entirety, for there is still evidence of them in the hills and coulees.

Some of the old-timers on the project attribute this reduction in "rattlesnake frequency" to the fact that there is no longer any food for snakes in the various areas. Buildings, paved streets and sidewalks have driven out field mice, gophers and young pheasants which once served as a food supply. Large rocks and boulders, which previously served as excellent hiding places, have been removed and replaced with fire plugs, street markers and flag poles. Therefore, the rattlesnake has found that he has little to gain by moving into the housing and work areas.

The decline in the number of rattlesnakes has in no way affected the precautionary measures established in the early stages of the job. The fact that no person has been bitten has not created a complacent attitude among workmen or their families. They fully realize the suffering and possible loss of life from an attack by one of these venomous reptiles.

In other words, we have moved into the 1950 rattlesnake season with our fingers crossed and our eyes open.

Taming the Saw

(From page 25)

sirable. The usual saw sharpening machine can be used, or a shop-type grinder can be used with the special, inexpensive fixture that is available.

The greater safety offered by the controlled-cut saw is indicated by the experience records of the Swiss Industrial Insurance Institute when the saws used are of this type. To compare the relative safety of the controlled-cut saw with the usual American type of saw, a series of tests was conducted at the Forest Products

Laboratory under conditions permitting measurement of kickback forces. A plywood panel was placed in front of the saw table, suspended at its top edge so that it could swing freely in its supporting framework. By measuring the angle of maximum swing when struck by kicked-back wood, the panel served as a ballistics pendulum.

Comparative Tests

Saws of the controlled-cut type and conventional American saws of the same gauge and diameter were used alternately on the same arbor at the same speeds for each test.

For the first test, edgings ¾ by 1¼ by 36 inches were placed alongside the saw in the position they would have at the instant of complete severance from a board being edged. The overhanging end, just long enough to overbalance the portion on the saw table, was given a slight swing (by an off-vertical guide) to bring the forward end of the edging against the saw as it swung upward. With both spring-set and swage-set saws it was not possible to make the edging catch on the saw and be hurled forward. With the conventional American saw, no kickback could be produced by this manipulation, although it is known that such kickbacks do occur and can be serious.

In the second test, the ends of short lengths of stock were brought into quick contact with the saw with the stock in both a horizontal position and sloping down toward the saw at 30 degrees to simulate the action when stock is allowed to touch the saw as it is being brought forward for a second ripping cut. Pieces of redgum 15 by 4 by ¾ inches were used for these tests, and the maximum kickback energy for the controlled-cut saw was only 0.045 foot-pound, whereas the conventional saw produced a kickback of 0.25 foot-pound, about five times as great.

In another test, 1 by 6 inch boards 2 feet long were fed from the rear of the saw to rip through the middle of the piece. Boards were fed flat on the saw table and also by resting the back end of

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No. 300 The **Reece "Hot Foot" sandals.** protect your feet in furnace and foundry rooms. Straps on over your own shoes. Heat resistant wooden soles, strong galvanized iron counter, flexible hinge toe. Cannot slip.

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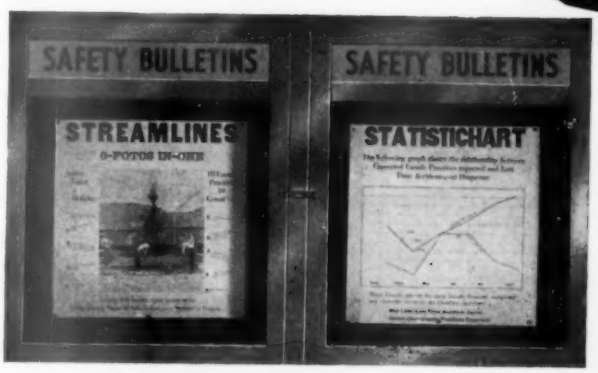
There is no substitute for Reece Wooden Soles

REECE WOODEN SOLE SHOE CO.

Dept. NS-7 COLUMBUS, NEBRASKA

Employees will LOOK HERE



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A central location for your safety posters and other messages increases their attention getting power. When that central point is a Diamond Bulletin Board, employees can read them day and night, in any kind of weather because Diamond Bulletin Boards are illuminated and non-fogging; sturdy all metal construction for durable service indoors and out. Write for further information and prices. SAFETY FIRST SUPPLY CO., 425 Magee Street, Pittsburgh 19, Pa.

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DIAMOND BULLETIN BOARDS

A Full 5 Inches of Body Movement
With Ease and Safety

BASHLIN'S
New Shifting Tool Dee Safety Belt

Next to Safety in the experienced lineman's book, Accessibility of Tools is of first importance in selecting a Safety Belt. This new Bashlin Safety Belt is designed with sliding tool loops . . . keeps tools within easy reach. And the built-in extra safety factor saves the Safety Strap from wear. It's Safe . . . Practical . . . Comfortable . . . and you *know* it's right. It's Bashlin.

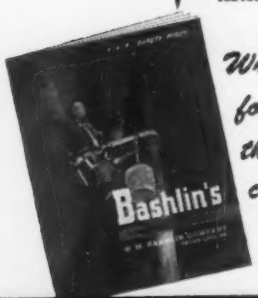
Another First

One piece aluminum sleeve adjusts from 15" to 18" in multiples of ¼". Locked in place with standard steel screws.

Comfort on the job, lightness and safety combine in Bashlin's adjustable Climber with removable gaff . . . Forged of aluminum alloy, the Bashlin Climber is lighter than conventional climbers and the *Same Strength as Equivalent Steel.* It's form fitting and has all the original Bashlin features.

No. BD 14

Removable gaff forged from alloy steel, features triple locking device with standard self-locking tested steel screws



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W.M. BASHLIN COMPANY

the board on the saw table and slowly lowering the front end onto the saw so that the initial point of cutting was 2 inches in from the end.

With the controlled-cut saw it was easy to hold the stock against the slight pull of the saw, which was very light and could be overcome by a fairly light downward pressure on the stock, such as could be provided by a spring hold-down attached to the fence.

With the conventional saw, strips can be balanced on the back edge of the saw table and the end allowed to ride on the top of the saw. The piece can be fed slowly downward until cut through, but if the stock is then fed with the saw it may be whisked forward very violently. One such piece, having an end area of 1¼ square inches, was driven 16 inches through a ⅜-inch, 5-ply Douglas-fir panel.

No Kickbacks from Pinching

The danger from flying small pieces (end trims) was compared by exposing the saw 2 inches and pouring a box of ⅞-inch cubes onto the back half of the saw from a height of 12 inches. The cubes lying on the saw table were then pushed into the back or rising side of the saw. With the swage-set, controlled-cut saw these cubes were tossed upward a maximum of 1¾ feet and only a short distance horizontally, with not enough speed to even sting. The spring-set, controlled-cut saw, having twice as many teeth as the swage-set, tossed some of the blocks somewhat higher and faster, but not dangerously so. The conventional saw, however, snapped the blocks forward and upward at velocities sufficient to dent plywood about $\frac{1}{16}$ inch, and a splinter from one block was embedded in the plywood deeply enough to require a slight tug to remove it. Many of the blocks thrown by the conventional saw passed, at eye level, the position a sawyer would normally occupy.

Some pieces of 1- by 5-inch dry redgum known to have internal stress that would produce pinching were ripped into thirds, one cut with a conventional saw, the other with the controlled-cut saw. The stock had some twist and when the front end of the piece reached the back of the saw the downward pressure was shifted to the opposite edge of the stock to aggravate the effect of the pinching by twisting. No reaction could be induced with either controlled-cut or conventional saws, although this procedure is known to produce grabbing.

Some short pieces of stock 1 by 3 by 9 inches were placed along the saw on the side away from the fence, to represent rippings or wide edgings and a diagonal pressure applied to force the far end of the piece against the rising edge of the saw, as in normal practice where the stock is pressed by hand toward the fence during feeding. With the controlled-cut saw, no lifting of the edging could be obtained unless it was swung sharply into the back of the saw. Under such conditions the edgings were sometimes turned over sideways, but never thrown off the saw table. With the conventional saw the same reaction was obtained but somewhat more violent in one instance when a ripping struck the plywood panel 15 inches above the saw table level with about 5 foot-pounds energy.

With the saw stopped, and projecting ½ inch above the table, a piece of ¼-inch board 6 inches wide and 18 inches long was placed on the saw table with the leading end resting on the saw about halfway between the near edge and the top (center). The saw was then started, to simulate the occasion on which a fence might be adjusted from a layout mark on a short board, the balance point of which is slightly off the saw table unless the board is pulled forward and thus engages with the saw.

On starting up, a low-powered saw may be stalled, but it is more likely that the board will be whipped forward. Under these conditions the controlled-cut saw barely slid the pieces off the saw table, with practically no tooth marks on the end of the pieces. With the conventional saw, the forward starting thrust was somewhat more vigorous, and the saw

tooth usually ripped out splinters about 2 inches long.

As a final test, pieces of 1- by 5-inch redgum were cross cut on rip saws with the stock held in the hand 1½ inches above and clear of the saw table, and feeding *into* the saw (not *with* the saw). The swage-set controlled-cut saw made the cuts under these conditions with only a few minor tugs or jerks that were easily restrained by the hands, even when the board was deliberately wobbled in both horizontal and vertical planes. With the spring-set controlled-cut saw, a little stronger action developed, pulling the board from the light finger grip used, but not hurling it violently.

When similar cuts were attempted with the swage-set conventional saw, one cut was completed, with several strong grabs that nearly pulled the board from a tight finger grip. In attempting a second cut, the board was violently jerked loose with sufficient force to bend and break the corners from a number of the teeth.

Safety Advantages

The controlled-cut saw has real merit on hand-feed saw benches, where high feed rates are not the rule. The small number of teeth make the saw much quieter in operation than the conventional saw, and this feature contributes to the increase in safety.

Taming of the saw seems to be slightly more complete in the swage-set type than in the spring-set type. On machine-feed saws, fully housed and provided with antikickback and other safety devices, the safety features of the controlled-cut saw are not needed, and the light feed per tooth will require very high spindle speeds to permit high production rates.

By increasing the cut per tooth or number of teeth per saw, or both, a feed rate of 200 feet per minute can be obtained, but no tests were made to determine how much reduction in safety, if any, would result. Other aspects of the commercial use of this type of saw have been reported by Dosker,* and tests of power consumption are reportedly being made by the Teco Laboratories.

* Dosker, C. D. The "Cut Control" Safety Saw. Southern Lumberman, 180:2253, p. 36, February 15, 1950.
Dosker, C. D. New Saw Cuts Operating Costs. Wood, 5:3, p. 15, March 1950 (Chicago).

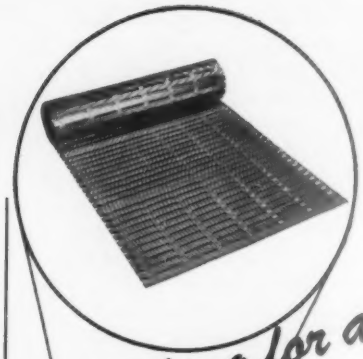
Testing Scaffold Planks

(From page 29)

on fulcrums of the required height; namely 5¾" for a 13 foot plank. The static (quiet) load should not exceed the weight of two men standing at the middle of the plank.

To test the plank, the men stand close together at the middle of the span and spring it up and down until it touches or nearly touches the floor several times.

There are certain peculiarities of wood which work out in our favor in this method of testing. Brashy (brittle) wood and wood containing compression failures are much weaker under impact than is good wood, and these two defects are the most difficult to detect during the visual inspection of the plank. In other words, the impact test is more likely to cause



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Three widths, 24", 36" and 48" with sections 24" x 12", 36" x 18" and 48" x 12". (2-24" sections) available in rolls. Ideal for recess matting, counters, kitchens, laundries and particularly where there are wet floor conditions.

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failure of a defective plank and less likely to do damage to a good plank than is the static test.

If no cracking sound or visual evidence of failure is observed when the plank is sprung up and down, the plank should then be inverted and the test repeated on the opposite face.

If still no cracking or visual evidence is observed, the plank is accepted for scaffold use and the ends branded as such. If rejected, the plank is conspicuously marked as such, and placed where it will not be inadvertantly used for scaffolding.

Should a faint snapping sound be heard in the vicinity of a knot, the plank should be inverted and tested, then turned back to the questionable side and tested. If the sound persists, it is better to reject the plank.

Planks which have been tested in any other manner are not used for scaffold purposes.

It is understood that the presence of defects other than those described, or of unusual combinations of available defects, may at the discretion of the inspector, be cause for rejection of any plank.

Handling and Storage

All planks accepted at the yard of the vendor are marked in a suitable manner by the inspector and are held by the vendor for delivery to us when and as desired. Such planks are separately stored under a cover in such a manner as to be protected from moisture or damage from any cause.

All planks that we have accepted are carefully handled to avoid damage, and when delivered to us they are unloaded without dropping and carefully stacked.

Safety Library

(From page 61)

Manufacturers Association, 155 East 44th Street, New York 17, N. Y. 1950, 22 p. Price $1.50.

Tests on the Control of Coal-Mine Fires in the Experimental Coal Mine. Published by U. S. Bureau of Mines. 1950, 14 p. Available from the Bureau, Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pennsylvania. Free (Report of Investigation 4685)

Waste Disposal

Industrial Wastes. Published by Industrial Hygiene Foundation, 4400 Fifth Avenue, Pittsburgh 13, Pennsylvania. 1950, 116 p. Price $2.00 to non-members. (Transactions Bulletin No. 13)

MAGAZINE ARTICLES

Boilers

Who Says C-I Boilers Don't Explode? (In Operative Engineer. May 1950, p. 26)

Chemical Industry

Safety. By V. R. Croswell. (In Industrial and Engineering Chemistry. May 1950, p. 77A)

Commercial Vehicles

Achieving Truck Safety. (In Coal Age. May 1950, p. 86)

Fire Protection

Automatic Sprinkler Tables. (In National Fire Protection Quarterly. April 1950, p. 272)

Cause and Prevention of Cotton Fires. By Mathew M. Braideck and Robert C. Dean. (In National Fire Protection Quarterly. April 1950, p. 240)

Fire Precautions With Uranium. By Edward J. Kehoe and others. (In National Fire Protection Quarterly. April 1950 p. 256)

How to Cooperate With Lightning. By Edward Beck. (In Factory Management and Maintenance. May 1950, p. 76)

New Fire Extinguishing Agents for Aircraft. By Howard A. Klein. (In National Fire Protection Quartertly. April 1950, p. 235)

Health

Early Detection of Benzene Toxicity. By Lamson Blaney, M.D. (In Industrial Medicine and Surgery. May 1950, p. 227)

Q Fever in a Wool and Hair Processing Plant. By M. Michael Sigel and others. (In American Journal of Public Health. May 1950, p. 524)

The Relative Infrequency of Occupational Dermatosis in Automobile Workers. By Dr. James R. Rogin and Dr. Marion W. Jocz. (In Industrial Medicine and Surgery. May 1950, p. 219)

Mines

What Miners Think About Safety. (In Coal Age. May 1950, p. 62)

Paper Industry

Industrial Injury Control As It

Applies to the Superintendent. By Dallas Henry. (In Southern Pulp and Paper Manufacturer. May 15, 1950, p. 48)

Safety—Crossing the Imaginary Line. By Alvin Tuten. (In Southern Pulp and Paper Manufacturer. May 1950, p. 49)

Public Utilities

Air Patrol Fights Powerline Fire. (In Electric Light and Power. May 1950, p. 66)

Safety in Substation Design. By J. O. Leslie and D. L. Green. (In Electrical Engineering. May 1950, p. 412)

Static Electricity

The Use of Radioactive Static Eliminators in a Printing Plant. By Irving L. Berman, M.D. and Eugene P. Ernest. (In Industrial Medicine and Surgery. May 1950, p. 229)

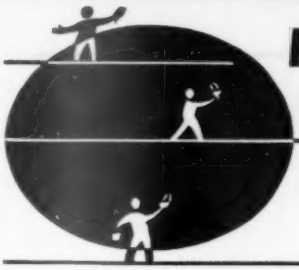
Keys to Accident Prevention

(From page 19)

of industrial accidents, great as they seemed, were in reality a small part of the actual penalty. Indirect or hidden costs, though difficult to compute, are found to exceed the direct costs. All accidents delay work. Men immediately adjacent leave their machines, to sympathize with their fellow, or merely out of curiosity. The word spreads like wildfire, and morale can be affected adversely for a long time.

One of the keys to which the title of this article refers is cost, as measured by the accident frequency and accident severity rates. In our company we make constant use of both; our frequency and severity rates are studied and discussed by my staff regularly. But there is no adequate yardstick to measure hidden costs. If these hidden costs could be allocated against a superintendent's profit and loss statement in red ink, it would undoubtedly give safety consciousness a big boost.

Traditionally, safeguards and good housekeeping are the important keys to industrial safety. "Safeguard the worker from his machinery and his surroundings," was the theory, "and you will eliminate virtually all cause of ac-



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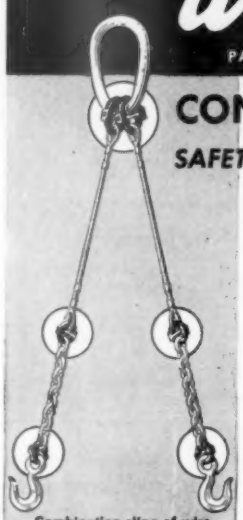

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cidents." Significantly, the first safety order at Illinois Steel's Joliet Plant called for periodic inspection of all fly wheels. In keeping with this thought, machines were surrounded with safety rails and basket guards, automatic circuit breakers and other protective devices.

Plant orderliness; elimination of dangerous aisle conditions; utilization of overhead conveyors; insistance on oil and grease-free floors—all were stressed as a logical complement to mechanical safeguarding. The ideas of plant safety inspection and of safety maintenance of equipment and property were generally adopted.

But studies of accident causes began to prove that good housekeeping and mechanical safeguards were not the whole story. Some 90 per cent is traceable to the human factor—the failure of people to observe due precautions commensurate with their exposure; their negligence in utilizing safety equipment; the tendency, even, of some people to attract accidents at a rate far beyond the normal expectancy.

Foreman Important

So management realizes that other keys to the problem must also be utilized. One of them is organizational effort. We cannot underestimate the importance of foremen. Theirs is the day in, day out task of keeping safety constantly before the men. They must take a personal interest in each man, making seemingly casual daily checks to determine when a man's frame of mind may make him temporarily safety careless. There are days when a one or two minute reminder may help a worried or absent-minded man save a finger, an eye, or even his life.

Foremen must know the details of each job in order to recognize possibly dangerous situations. They must constantly sell to their men the wisdom of using personal protection devices provided by the company, and see to it that they are used properly.

But behind the foremen and supervisors must be a determined management. Unless the safety program has the support of top

authority, foremen and supervisors cannot be held accountable if they give first attention to production. So the organizational key is adequate only when it applies all the way up and down the line.

Another valuable key is education. Our first important contact with a man is his application for employment. Almost every company has induction and orientation procedures, designed to acquaint new employees with their new environment, or to re-acquaint returnees with the basic information pertinent to employment. Here is a golden opportunity. Men must be warned about the potential dangers, but they must also be assured that with proper care they can handle safely the machines they will operate. They must be given confidence by being educated in basic safety practices and by being assured that safety is a prime concern of management.

Continuous Education

Important as this initial contact is, we cannot overlook the value of continuous education. Safety manuals, formal training courses, and active inquiry to determine how well the lessons have been learned should all be used.

Company publications, bulletin boards, employee manuals, films and other media are important aids in a continuous program.

We know that unflagging interest in proper use of all these keys will pay dividends in terms of improved employee relations and morale. Statistics show that injury rates are currently decreasing. According to *Business Week*, injury rates dropped to a record new low during 1949, when there were about 14.1 disabling injuries for every million man-hours worked.

Members of plant safety departments played an important role in industry's accomplishments. Apparently they are using the keys already mentioned to good advantage—those keys which I have labeled good housekeeping, mechanical safeguards, organization effort, and education.

With such evidence of progress before us, nevertheless I believe that we have yet to utilize fully

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the most important key of all—mutual interest.

Many of us are parents. We have all known the experience of finding a pin lying on the floor where a child could find it and put it unthinkingly into his mouth. We have seen a kitchen knife lying invitingly at the edge of a table. We have noticed a tempting folder of matches flung carelessly on a chair.

These are commonplace things, but with a child nearby, our awareness of them has been quickened by a new concern—that of what they could become in the hands of the child, who might act from ignorance or heedlessness.

Take Positive Action

And what is our normal reaction? Simply this: We anticipate his possible actions, and we take steps to protect him from himself. We pick up the pin; we put the knife away; we move the matches out of reach. In other words, we take positive action out of concern for the child—we don't just call him in and caution him not to touch, because we know a lecture may not be sufficient.

What about the adults in our homes? When we notice a loose board at the bottom of the basement steps do we pass it by? Or do we content ourselves with a warning to other members of the family? Often we eliminate the potential cause of the accident. Our concern is not only for our safety, but for the safety of everyone near and dear to us.

By logical extension, this concern for the safety of others should carry over into our working life. The more hazardous a man's occupation, the more anxious he should be to protect not only himself but everyone who could conceivably find injury near his place of work.

This is, of course, nothing more than a practical application of The Golden Rule. But somehow, between the time a man leaves his home and the time he takes his place at desk, bench or machine, he seems to shed this personal awareness of peril to others. We all know, in fact, that his thinking is likely to take the opposite trend and to make him heedless of his own personal safety.

We can understand why this is so. A man's primary objective in his business is security—to be indispensable enough to assure himself of continued employment, to be productive enough to better his economic reward. This is a selfish role, forced on him by the demands of our society; which dominate his thoughts and his actions.

Small wonder then that this man, fighting his own daily battle for personal survival, sometimes finds it difficult to display the same concern for the safety of his fellow men. And if management confirms his belief that safety is a minor consideration, even if only by failing to assume a positive attitude, then the man cannot be blamed for his apathy.

Management has failed to convince employees that safety is compatible with economic security. We have failed to make mutual safety foresight of sufficient concern from the top all the way through the rank and file.

Admittedly, there has been progress in the areas of safe production methods, and of employee orientation and education. Mechanical safeguards grow ever better, and physical considerations are studied constantly to devise a safer plant environment. We must continue to make progress in all of these areas; we must make greater efforts to instill mutual concern among all employees.

We have, perhaps, kept safety too long in the realm of costs, of enforcement from above, and of an individual's selfish concern for his own well being. The cost of poor safety records is extremely difficult to get across to most employees. That arousing concern in an individual for his own safety has failed to cut down frequency rates is shown by the large percentage of accidents attributable to lapses of that very concern.

We have found that busy, pressure-conscious supervisors and foremen dislike, in the main, to study the complicated mathematics

of frequency and severity rates. How much less, then, must be the comprehension of statistics by men under their jurisdiction?

But who can mistake the motive of the father who picks up a pin or repairs a loose board in the cellar steps? That motive is as simple as the Golden Rule itself. The job in industry is to plant the idea of mutual concern in everyone's mind. It must have the full force of authority behind it and the greatest cooperation of all supervisory personnel.

Plan of Action

In our company, we feel that we have taken positive steps in this direction. We have formalized an over-all code or plan of action that every employee can understand.

I should like to present, in part, what is called our "President's Plan for a Safe Budd Plant." Published in 1947, it has been reproduced in a form which can be displayed permanently in the plants, and has been included in all employee handbooks, supervisors manuals, and publications.

The preamble states:

Upon my instructions, this six-point plan of minimum standards for a Safe Budd Plant has been established by the Management. My further instructions to my Staff and all members of the Management Organization are to see that this plan is executed in its entirety; for in no other way can we achieve our goal of improved safety on every job.
(My signature is affixed.)

Following the preamble, we list six points:

1. Safety must at all times be a prime factor in the thought and action of our management.

A sympathetic and intelligent attitude taken by the plant manager and those who are responsible for plant operation, founded on their authority to correct unsafe practices and working conditions, is essential.

2. Established organizational line of safety action, stemming from superintendents and department heads, channeling through all supervisors to every employee.

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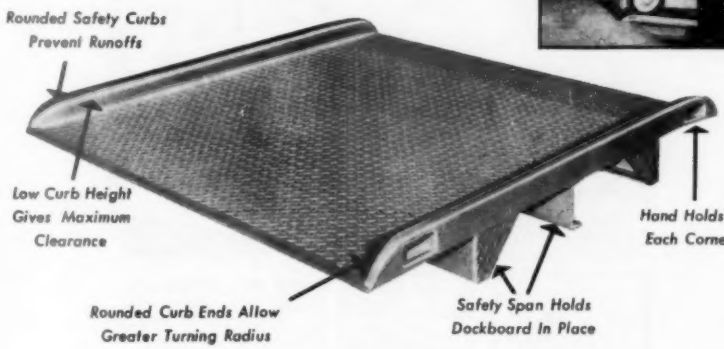
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heads should schedule periodic meetings with their foremen at least once a month to review their safety record and program.

All foremen should talk to two employees daily on safety policies and safe practices regarding their specific jobs.

3. Adequate, qualified full-time safety personnel is essential.

Each plant should have a full-time capable man to organize and execute a continuous program of safety education. He should be assisted by a staff of safety inspectors sufficient in number to cover all plant operations on all shifts.

4. Complete safety instruction for all new employees.

This should be handled by a qualified member of the safety department.

5. Continuous training program for supervisory personnel.

Every foreman should be reminded periodically of safe practices and further reminded that safety is a major part of his responsibilities.

6. Educational program to stimulate the interest of each employee.

The topic of safety should be brought aggressively to the attention of every member of the organization through a well-planned, efficiently executed schedule of daily contacts with employees and through posters, exhibits, employee publications, planned conferences, and safety manuals.

Through these six points we feel that we are planting the idea of mutual concern throughout our organization. We feel further that our plan insures careful nourishment of this idea. If we succeed, I believe we will have found the key to unlock the last and strongest barrier between us and the ideally safe plant — the human lock.

Of course, I can predict the outcome. I can say with confidence, however, that our task and that of all industrial management is made much lighter by the fine professional assistance of the organized safety movement and its practicing members.

Pamphlet 93 Revised

Safe Practices Pamphlet No. 93, "Topics for Safety Meetings," was recently revised to include two new topics. Bringing the number of topics outlined for use in safety meetings to thirty-two, the subjects added to the latest revision of the pamphlet are safety shoes and lifting. Twelve demonstrations to show right and wrong methods are described under lifting. Copyright date shown on this latest edition of Safe Practices Pamphlet No. 93 is 1950.

Member prices: 1 to 9 copies, 40 cents each; 10 to 99, 35 cents each; 100 to 999, 30 cents each; 1,000 or more, 29 cents each.

New Material for Miners

Three new publications of interest to safety directors and supervisors in the mining industry are now in stock.

Data Sheet D-Min. 9 covers the subject of "Cutting and Loading Machines in Coal Mines." After listing the points to be considered when new machinery of this type is to be purchased, the data sheet discusses inspection and maintenance, tramming, gas inspection at the face, falls of roof and rib, operating a loading machine at the face, and operating a cutting machine at the face.

Safety Reprint Mining No. 5, "Carbon Monoxide from Blasting Underground," is a reprint of a paper presented before the Mines Accident Prevention Association of Ontario by R. W. Thompkins.

The author discusses the properties of carbon monoxide, its occurrence underground, and three cases of sickness caused by carbon monoxide gas. He then reviews fatal accidents due to carbon monoxide in Ontario mines from 1938 to 1948 and summarizes the lessons gained from experience with carbon monoxide from blasting. After mention of possible physical effects of the gas other than death, a list of remedial measures and a statement of conclusions are given.

The reprint includes a chart which shows the effect of carbon monoxide on human beings and five drawings which illustrate some of the cases discussed.

Another Safety Reprint, Coal Mining No. 15, on "Job Safety Instruction in Coal Mines," illustrates a simple thorough method of training men in job procedure. The article points out how each step—preparing the worker, presenting the operation, trying out the performance, and following up—can be handled effectively.

Member prices: D-Min. 9—1 to 9 copies, 15 cents each; 10 to 99, 11 cents each; 100 to 999, 7 cents each; 1,000 or more, 6 cents each; Safety Reprint Mining No. 5—1 to 9 copies, 45 cents each; 10 to 99, 35 cents each; 100 to 999, 30 cents each; 1,000 or more, 25 cents each. Safety Reprint Coal Mining No. 15 will be sent free on request.

Safe Worker and Safe Driver

The August issue of each of those two popular employee publications, the SAFE WORKER and the SAFE DRIVER, features a story about a good dependable worker (and in the second case a reliable driver) who permits himself just one slip in common sense—and pays a big price.

Another item in the WORKER tells how a stunt man can blow himself up with dynamite and get away with it, whereas two workers in Japan, just by making a bet, started an $83,000,000 fire.

A second feature in the DRIVER allays the fear that jet-powered vehicles, if they should ever appear on the highways, would create chaos. Change, the story points out, need cause no alarm if the human element can be controlled.

Member prices: (annual subscriptions for either the SAFE WORKER or the SAFE DRIVER), 1 to 9, 65 cents each; 10 to 99, 60 cents each; 100 to 999, 45 cents each; 1,000 to 4,999, 38 cents each; 5,000 to 9,999, 36 cents each; 10,000 to 19,999, 34 cents each; 20,000 or more, 32 cents each.

Fire Prevention in Logging

Presenting a simple but all-inclusive plan of action which can be used as a reference and a guide, Safety Reprint Pulp and Paper No. 1 has been prepared to help logging operators so organize their work that losses from fire will be kept to a minimum.

This four-page publication, entitled "Fire Prevention on Pulpwood Logging Operations," includes a plan for fire prevention; a plan of action covering education, fire hazard reduction, and closures and restrictions; a list of sources of help; and some pointers on fire prevention.

Member prices: 1 to 9 copies, 15 cents each; 10 to 99, 11 cents each; 100 to 999, 7 cents each; 1,000 or more, 6 cents each.

New Instruction Card

A brand-new Safety Instruction Card, No. 777, "Press Brake Operation," is now in stock. This list of safety tips for operators is reproduced with Data Sheet D-Me. 28, "Press Brakes," which appears elsewhere in this issue of the NATIONAL SAFETY NEWS.

Member prices for the card: 1 to 9 copies, 5 cents each; 10 to 99, 2-3/10 cents each; 100 to 999, 1-7/10 cents each; 1,000 to 4,999, 1½ cents each; 5,000 or more, 1¼ cents each.

New Farm Leaflet

A new Safe Farm Practice Leaflet, "Petroleum Products," is now available. This four-page publication describes the vaporizing characteristics of farm fuels as well as safe handling and storage practices.

SAFETY POSTERS

from
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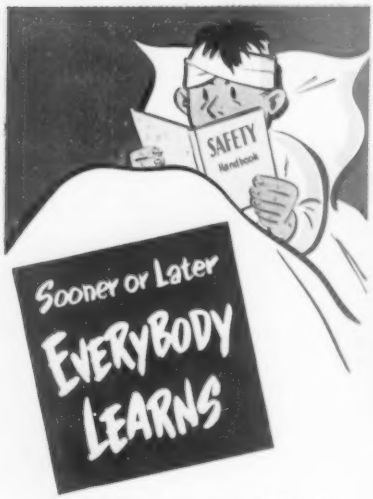
IMPORTANT

All posters displayed on these pages, except the jumbo poster, will be available through 1950, and may be secured as a part of N.S.C. membership service, or by purchase.

Posters numbered 8800 and up are new posters. Others are among the 774 posters shown in the 1950 Poster Directory.

Write to Membership Dept. of N.S.C. for further information.



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Electrotypes or poster miniatures on this page are not available, nor can payroll inserts be supplied.

Posters below are printed in two or more colors
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Jumbo posters 9′ 11″ by 11′ 8″ in size, designed for outdoor use, are issued monthly. They are available to members for $42.50 annual subscription.

NATIONAL SAFETY COUNCIL

8983-B **17x23**

NATIONAL SAFETY COUNCIL

8997-A **8½x11½**

NATIONAL SAFETY COUNCIL

9021-A **8½x11½**

NATIONAL SAFETY COUNCIL

9032-A **8½x11½**

NATIONAL SAFETY COUNCIL

9025-A **8½x11½**

NATIONAL SAFETY COUNCIL

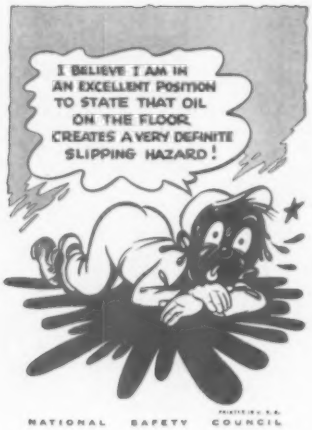
9035-B **17x23**

See box on page 98 for information about these and other National Safety Council posters.

Posters below are printed in two or more colors
(Available only in sizes indicated)

8907-B 17x23

9014-A 8½x11½

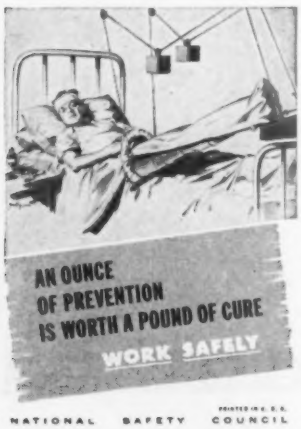

I BELIEVE I AM IN AN EXCELLENT POSITION TO STATE THAT OIL ON THE FLOOR CREATES A VERY DEFINITE SLIPPING HAZARD!
NATIONAL SAFETY COUNCIL

8966-A 8½x11½

8980-A 8½x11½

9033-A 8½x11½

7420-A 8½x11½



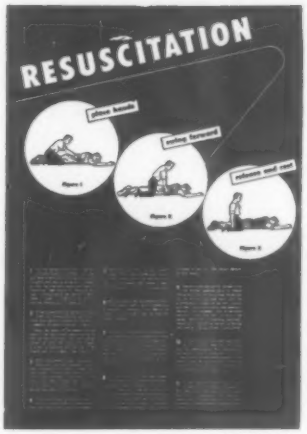
8568-A 8½x11½

8193-A 8½x11½

8971-A 8½x11½

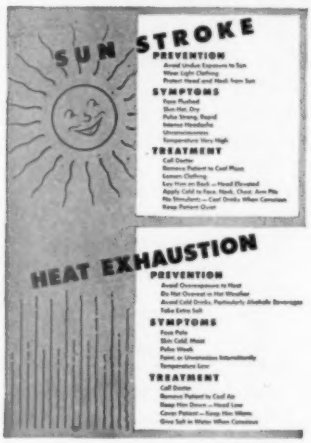
See box on page 98 for information about these and other National Safety Council posters.

Posters below are printed in two or more colors
(Available only in sizes indicated)



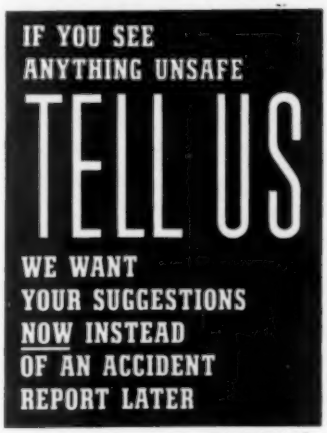
NATIONAL SAFETY COUNCIL

8214-B 17x23



NATIONAL SAFETY COUNCIL

8428-B 17x23



NATIONAL SAFETY COUNCIL

7079-A 8½x11½

NATIONAL SAFETY COUNCIL

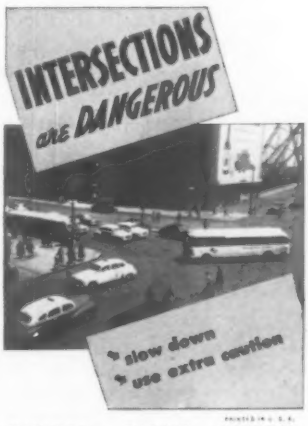
8669-B 17x23

NATIONAL SAFETY COUNCIL

8959-A 8½x11½

NATIONAL SAFETY COUNCIL

8570-A 8½x11½



NATIONAL SAFETY COUNCIL

V-9067-B 17x23

NATIONAL SAFETY COUNCIL

V-9065-A 8½x11½

NATIONAL SAFETY COUNCIL

V-9066-A 8½x11½

See box on page 98 for information about these and other National Safety Council posters.

Introducing

THE
NEW 1950

DRYBROW

"The Nation's Sweatband"

Exclusive patented features make DRYBROW the sweatband preferred by workers in American industry from coast to coast. No other sweatband combines these features:

1. **Sponge is reinforced for longer life.**
2. **Free-floating, self-adjusting, all-rubber head-band eliminates strain on sponge.**

Major industries are now using millions of DRYBROW annually to take the "lag" out of production. Workers are happier-cooler, more comfortable.

A fifteen year record proves the use of DRYBROW improves the production of all people who perspire in their work.

DRYBROW pays for itself every hour it is worn—lasts for months and is completely sanitary.

TRY A DRYBROW AT OUR EXPENSE. WRITE FOR FREE SAMPLE DRYBROW.

Packed in boxes of 25

1-39 boxes .....$3.75 per box

40 boxes or more .....$3.25 per box

Stocks ready for immediate delivery. Packaged in individual envelopes with instructions to worker.

AMERICAN ALLSAFE CO., INC.

1245 NIAGARA STREET - BUFFALO 13, N. Y.

Press Brakes

(From page 33)

those jobs where the size of the stock being processed requires an operator to hold it in position. Before the ram is driven home, the two-hand control buttons or levers are used to bring the die into position, allowing minimum clearance for the stock; the stock is then centered and formed by the further action of the ram actuated by depression of the foot controls.

16. Foot controls may be pedals, treadle bars, or foot switches. Where two or more operators are used, all such foot controls should be connected in series so that each man must be in the clear with his foot on the control before the press can be operated. Such controls can be connected electrically, pneumatically, or mechanically.

17. Foot controls should be covered by stirrup guards to prevent accidental tripping. If a treadle bar is used, all portions of the bar should be covered except an area large enough for the operator's foot.

18. Adequate clearance for the changing shape of the stock being processed should be assured before press action is started.

19. Knowledge of a machine's capacity is important. Three basic factors determine the brake pressure required to form material to a single 90° bend; length of work, thickness of material, and sharpness of bend. Because of the wide variation in these three factors, careful study should be given to the selection of the proper machine to perform the specific job.

20. Soft metal pliers rather than fingers should be used to feed small parts to the press. No parts which require the fingers to be brought within 4 inches of the point of operation should be hand fed.

21. Power pulleys, gears, chains, cranks, couplings, and other dangerous moving parts exposed to contact should be guarded with complete enclosures of either sheet metal or wire mesh screening rigidly mounted and securely fastened in place.* State codes should be consulted to determine local height requirements for guarding from floor levels.

22. Variable speed drives can be and frequently are furnished for power presses. On standard presses the range is from 17 to 50 strokes per minute. On heavy duty presses the range is from 13 to 39 strokes per minute.

23. The variable drive has proved valuable in production of small parts. The operator can change the speed conveniently with the hand wheel screw on the motor base. He can set the speed to allow the press to run continuously at a pace at which he can conveniently feed the parts and catch every stroke of the press.

24. The variable drive is a safety feature in making short flanges on long and wide sheets. The strokes can be set at low speed so that the wide sheet will not be thrown upward too fast.

General Precautions

25. Machines should be so located that there is adequate floor space for each worker, without interference from or hazard to other workers. Adequate illumination should be provided for all machines.**

26. Material should not be stored close to machines. Floors should be maintained in good condition, free from obstructions and litter. Safety containers should be provided for scrap or trimmings.

27. Only men whose sight, hearing, and general physical condition are good should be selected as operators. Untrained men should never be permitted to operate press brakes. All repairs or adjustments should be made by a qualified mechanic.

28. Operators should be instructed to "test operate" the machine a few times at the start of each working shift and after each

* See the National Safety Council's Safe Practices Pamphlet No. 110, "Mechanical Power Transmission Apparatus," for further information on guarding of dangerous moving parts.

** For additional information on lighting, see the National Safety Council's Safe Practices Pamphlet No. 22, "Industrial Shop Lighting."

setup to make certain that it is operating properly.

29. All parts of the machine control mechanism should be inspected at regular intervals, and those parts which cannot be completely inspected while assembled on the machine should be removed for that purpose. Use of the machine manufacturer's periodic inspection service is suggested where it is available.

30. Replacement parts should be purchased from the manufacturer of the machine.

31. Die racks equipped with rollers and stops should be provided to accommodate the larger dies.

32. Elevating-type trucks for transporting dies from storage racks to machines and back to storage should also be provided to minimize lifting.

ACKNOWLEDGMENT

This data sheet was prepared by the Power Press Section, National Safety Council. Special credit is due H. F. O'Leary, G. H. Berry, and Basil Burns, Hawthorne Works, Western Electric Company. The final draft was completed under the supervision of A. S. Kelly, staff representative, Power Press Section, reviewed by the Council's Safe Practices Conference Committee, and approved by the Council's Industrial Conference.

Frustration and Hokum

(From page 37)

month I have battled furiously against exaggeration in the promotional booklet for the company. As advertising manager, with a background of publicity, sales and promotional work, he might have ideas that could be applied to my problem.

And there's the big boss, Joe Roscoe, the compleat salesman, the great believer in psychology at the Dale Carnegie level, the unembarrassed finagler, the technical ignoramus who is a master at finding the motivations behind human action.

Suppose—and it is a distasteful supposition—I should go to Bill and Joe and ask them for advice. Certainly I would get a response. Certainly they would be intrigued with the problem, and I would get plenty of suggestions. Also, quite probably, I would be urged into

SAFETY EQUIPMENT FOR ALL INDUSTRIES

IPCO M&M RAIL CLAMPS

Used for car stops, on loading platforms, temporary sidings, cars on grades and traveling cranes.

THIS — The Dangerous Way

OR THIS — THE SAFE WAY

WRITE FOR BULLETIN K-70

Used and recommended by leading Steel Companies, Manufacturing Plants, Mines, Grain Elevators, Cement Plants and Quarries.

IPCO — Safety Equipment for all Industries

INDUSTRIAL PRODUCTS COMPANY

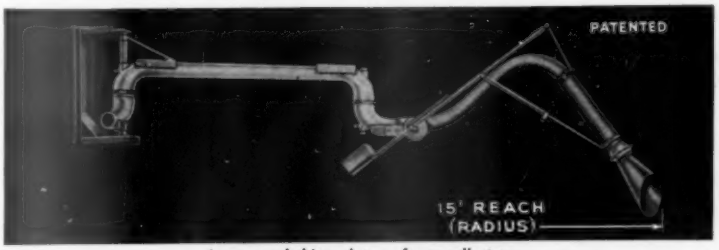
2850 N. FOURTH STREET • PHILADELPHIA 33, PA.

"Ruemelin Fume Collectors certainly have a powerful suction. We welders like them because they do a good job of taking away smoke and heat."

Long Reach Hinged Type Fume Collector Extends Working Range

Welding shops equipped with Ruemelin Fume Collectors enjoy a clean working atmosphere. Smoke, heat and gas are removed quickly and efficiently. Working conditions greatly improved . . . production increased. For the large welding booth, a long reach model (shown below) makes it easy to reach any welding job. 15 ft. and 18 ft. sizes. Available in wall type or underslung ceiling type brackets.

Portable models also available. Write for Fume Collector Bulletin 37-D.



Long reach hinged type fume collector

RUEMELIN MFG. CO.

MANUFACTURERS AND ENGINEERS
SAND BLAST AND DUST COLLECTING EQUIPMENT
3885 NORTH PALMER STREET • MILWAUKEE 12, WISCONSIN, U. S. A.

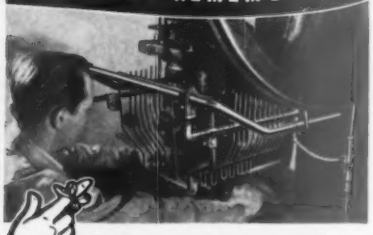
A5781-⅛

A Dust-Free Plant
IS ALWAYS MORE
EFFICIENT

Consult DRACCO ENGINEERS
about DUST and FUME
CONTROL

DRACCO CORPORATION
4043 E. 116th Street • Cleveland 5, Ohio

WHEN HE FORGETS...
THE GUARD REMEMBERS!



Here's protection against those forgetful moments when tragedy lashes out to claim its toll.

The Junkin Safety Guard is effective . . . dependable. It can't "forget" because it's built in . . . actually becomes a part of the press itself.

That's how Junkin is helping thousands of satisfied users set up better safety records . . . higher production records.

Write For This New Bulletin

If you would like the facts about Junkin Safety Guards, write us. There's no obligation.

JUNKIN SAFETY APPLIANCE CO., INC.
930 WEST HILL STREET,
LOUISVILLE, KENTUCKY

JUNKIN SAFETY GUARD

a course of action that flatly violates all my prejudices.

But can I, in view of this month's record, afford to have any prejudices?

There is just one answer to that question—a most emphatic "No!"

And that answer is all that has come out of this weary night in the office.

* * *

July 3, 1950

Larson looked at me sadly when I popped my idea of contacting Jordan and Roscoe. Larson's my kind of guy—simple, direct, plain spoken, a production man from the shop up. But he didn't block me. "Look," he said, "I'm in charge of manufacturing. You're my guy on safety. It sounds nuts, but if you think the fancy pants in the front office can help you, go ahead."

So I popped the idea to Roscoe, and he called in Jordan, and we had an hour and a half of batting ideas around. As I expected, they reacted with enthusiasm.

Jordan was better informed than I was on the work of The Advertising Council in behalf of safety. He scanned with joy a couple of articles from old copies of the NATIONAL SAFETY NEWS which I brought him, particularly one yarn about a stunt program Cap Dinsmore handled (with advertising department help) for Wisconsin Power and Light.

After some general discussion of the situation, Roscoe laid down the basic approach. "I want something dramatic—pleasantly dramatic. No horror, no making a man the butt of a joke. So no goats, no kidding. But still something to create and hold interest and give people an emotional stake in the thing. That means prizes, competition. And I want it keyed high, the kind of thing that calls for flash bulletins, score boards in the cafeteria. Essentially, you say, ours isn't a departmental problem in the usual sense. Nonetheless, to the men in the shop, the department's the reality, the company only an abstract idea. Only in the department, the gang, the small crew can social pressure function effectively. So we organize this departmentally.

"Also—and watch this in working out details—set it up so everybody's in there with a chance to win all the time. No long, drawn out deal in which a department with accidents at the start knows it's permanently out of the running.

"I'll give you some prize money and some promotion money. You two work it out—and I want a personal role in handling the affair in its public aspects."

So Bill and I went off with some of his staff to work out details. I still don't see all the angles in it, but the general architecture of the deal is taking shape.

First, the contest will last six months, but will be subdivided into six monthly contests as well as the over-all deal. We're subdividing departments to make, as nearly as possible, contest units of 100 employees. Each month's contest is to be judged on a yet-to-be-worked-out formula which includes a month without an accident, and is weighted by the average frequency of the type of operation over the last several years, by the amount of improvement in housekeeping and reduction in safety violations as shown in the routine reports of the safety department, and, finally, by a report of a rotating inspection subcommittee appointed by the company safety committee.

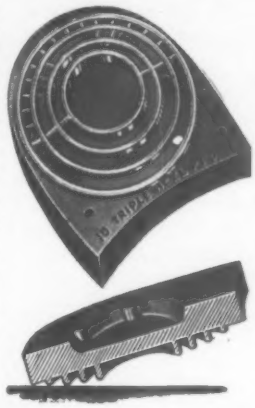
For the department which wins a monthly contest, there will be a dinner, the award of a banner to hang in the department, and a drawing for government savings bonds, limited, of course, to members of the department, and further limited to workers who have no individual safety violations charged against them.

Jordan wanted to eliminate from the drawing all first aid cases—but I slapped that down hard. Instead we'll ban from the drawing anybody suffering a minor injury who doesn't go to first aid—if we find out about it.

The six-month's grand prize is a purely individual one, but with a payoff to the department in which the individual works. It will really be a popularity contest with much electioneering type of whoopteedoo in the company

NON-SKID SAFETY

SHOCK ABSORBING



LONGER WEAR

The Triple Safety Heel was designed to minimize foot slipping accidents. It has a tread design of circular ribs with connecting cross bars that causes suction. In walking it gives road contact of one inch, where ordinary heels contact only on the edge. Laboratory tests show Triple Safety Heel has 97% road contact and traction.

Design permits rubber to flex, absorbing body shocks, minimizing fatigue. Triple Safety Heels will give longer wear and reduce slipping accidents on wet or slippery floors.

WRITE FOR CIRCULAR

TRIPLE SAFETY HEEL CO.
2149 Leland Avenue Chicago 25, Ill.

How to Get Sure Sanitation at Low-Cost

YOU know you're safe when you sanitize tableware, utensils, cafeteria equipment with Oakite Sanitizer No. 1, potent, fast-acting, long lasting quaternary germicidal agent. You save too, because for most jobs, you use as little as ½ oz. per gallon of water.

Applied in recommended rinse solution after regular washing, Oakite Sanitizer No. 1 kills germs, protects surfaces against recontamination. Practically tasteless, odorless, non-irritating. Fine for plant-wide sanitation.

Write for details. Free!

OAKITE PRODUCTS, INC.
14D Thames Street, NEW YORK 6, N. Y.
Technical Service Representatives Located in Principal Cities of United States and Canada

OAKITE

SPECIALIZED INDUSTRIAL CLEANING MATERIALS • METHODS • SERVICE

house organ, but with a stiff set of personal standards relating to safety performance which eliminates from the election any violator of safety rules.

We'll make the awards at a Valentine's Day party, open to the people belonging to the same contest unit as the six winners. We'll crown a king and queen and ladies and gentlemen in waiting. Fancy loving cups and bond prizes for winners.

Jordan is scheming up a theme for the contest, and a series of bulletins, special bulletin boards, house organ play, and public address system announcements.

It sounds completely insane. It also seems to me that it will really accomplish something.

And I am perfectly willing to make seven kinds of a public spectacle of myself if it will save me another month like the last one!

(To be Continued)

River Water Purified by New Process

Water from the Schuylkill River now has a spring-water taste due to a new water purification process that uses no unpalatable chemicals plus an instrument known as the "G-E dew-point recorder." Philadelphia's new Welsbach Corporation plant is the largest water purification installation in the United States using ozone to kill river water bacteria.

In the ozone process, outside air is compressed, cooled, and dried. Then the air is blown past banks of metal plates charged with high voltage. The electricity from the plates causes an electrostatic discharge to take place within the passing air, producing ozone, an unstable form of oxygen.

As the air passes over the metal plates which cause the electrical discharge, it must have a very low moisture content. To assure that moisture in the air remains constant during the process, the dew-point recorder is used. Designed and built by engineers of the General Electric Company's General Engineering and Consulting Laboratory at Schenectady, the instrument gives a continuous record of air dryness, accomplishing this by measuring and recording the tem-

MAGNESIUM (CAST-IN SAFETY-TREAD) LADDER STEP

• SAFE • STRONG • ALL MAGNESIUM
• NON-SLIP • WEIGHS LESS THAN 3 LBS.
• NOTHING TO WEAR OUT • ADJUSTABLE

Protect your workers and conserve their energy with ground level stability at any ladder rung height. Fits any ladder rung and frees both hands. Nothing to wear out or break, adjustable to any safe ladder incline, it has a non-slip platform surface of cast-in abrasive.

Write for our literature.

THE WATSON COMPANY
1443 MAIN ST., BUFFALO 8, N. Y.

Recomended by INSURANCE UNDERWRITERS!

OIL-SPUNJ

provides maximum reduction of . . .

SLIPPING AND FIRE ACCIDENTS

The sure, safe and economical way to cut down slipping accidents and flash fires . . . the way recommended by fire underwriters . . . is to spread Oil-Spunj on greasy, oil-soaked floors.

Oil-Spunj covers more floor area, absorbs more oil and grease, it's skid-proof and fire-proof . . . may be used over and over again. Simply sprinkle it on . . . brush with broom . . . sweep it off!

Send for samples and prices

CANFIELD OIL COMPANY
Cleveland 27, Ohio

YOU'LL
BREATHE EASIER
with ACME Gas Masks

"Free-breathing" is one of the big advantages offered by Acme Full-Vision Gas Masks. There's no "bellows action." The face piece doesn't try to leave your face. You breathe easier because the new Acme valve provides minimum breathing resistance. It's just another Acme feature that means comfort to the wearer.

Write for the complete story on Acme Gas Masks for all occupational hazards.

ACME PROTECTION
EQUIPMENT COMPANY
3037 WEST LAKE STREET
CHICAGO 12, ILLINOIS

HALCO
SNAKE BITE KIT

$2.50

- 1 Glass Suction Syringe
- 1 Tube Syringe Lubricant
- 1 Snake Bite Lancet
- 1 Tourniquet
- 2 Ammonia Inhalants
- 2 Iodine Swabs

A. E. Halperin Co., Inc.
75 Northampton St.
Boston 18, Mass.

perature at which moisture in the air condenses on a mirror's surface, engineers said.

The ozone is bubbled through river water from which the sediment has been allowed to settle. Being an unstable gas, the ozone breaks down again into ordinary oxygen, and in the process it kills the bacteria in the water.

Finally, the water is filtered and pumped into city mains, with only a trace of chlorine added to protect its purity from the time it leaves the reservoir, until it reaches the city's water faucets.

Mine Fire Put Out With Carbon Dioxide Gas

Carbon dioxide was used to smother a fire in an Illinois coal mine last year, after other methods had failed, according to a recent report released by the Bureau of Mines, U. S. Department of the Interior.

The use of carbon dioxide was decided upon after sealing the fire area, in an intake airway of the Valier mine of the Valier Coal Company at Valier, Ill., and then flooding it had been found impracticable. When the fire, of electrical origin, was discovered on March 29, 1949, the airway had caved to a height of 20 to 40 feet, and top coal was burning under a large rock fall. Temporary seals erected to keep air from the fire were blown out twice by gas explosions. Later, concrete dams were built preparatory to flooding the area, but the engineers decided that they would not stand up under the weight of water that would be necessary.

Eight days later, on April 6, new seals were erected and carbon dioxide gas was introduced into the area. Diluting and displacing the mine gases and depriving the fire of oxygen, the carbon dioxide is believed to have extinguished it within 11 hours. To be on the safe side, however, the area was left sealed until April 19.

Assistance of the Bureau of Mines in fighting the blaze was sought on April 4. Following an inspection of the seals and dams by James Westfield, chief of the Bureau's Vincennes, Ind., Branch, Safety and Coal-Mine Inspection Division, and H. C. Brumbaugh and R. W. Whittaker, Bureau coal-mine inspectors—the authors of this report—a company official arranged for the delivery of five tons of liquid carbon dioxide at the mine.

About an hour after the gas was admitted into the fire area one seal had cooled to almost normal temperature and there was very little smoke. Steps to prevent similar fires have been taken by the company, the report notes.

The publication describes the method of admitting the carbon dioxide gas and it includes a description and sketches of the sealing off of the burning area.

A free copy of Information Circular 7563, "Extinguishing Fire with Carbon Dioxide in the Valier Mine, Valier Coal Co., Valier, Franklin County, Ill.," may be obtained by writing the Bureau of Mines, Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pa.

You'll find these products in SAFE HANDS!

HANDEEZ

LIFTS shop grime from the pores gently but *thoroughly*—a *must* where hands come in contact with lubricating oils. Contains a sterilized vegetable emollient which acts as an absorbent. Non-irritating action keeps skin free of cracks where dermatitis gets its start. In powder form—bulks BIG at a very low cost.

VOLAX

Extra-heavy-duty hand cleaner. Removes ground-in grime, printing ink, stubborn dirt. Contains friable volcanic ash.

DISPENSING EQUIPMENT AVAILABLE

See your DOLGE SERVICE MAN or write for literature

The C. B. DOLGE Co.
WESTPORT CONNECTICUT

JUST PUSH THE BUTTON

to put these powerful forces to work in your company

Right now management has an unusual opportunity to gain employee-relations value from the high public interest these genii have created for U. S. Savings Bonds. During the Treasury Department's Independence Drive, May 15-July 4, every major advertising medium has been used to broaden the people's interest in Savings Bonds as a means of building financial independence. Now, more than ever, as a result of this all-out campaign, your employees will appreciate the convenience of being able to obtain Bonds "automatically" via the Payroll Savings Plan.

If your company doesn't yet have the Payroll Savings Plan, now's the most opportune time for you to install it!

If your company does have the Plan, now's the time to remind employees about it!

Employees who pile up money in Savings Bonds feel more secure . . . are actually better workers. Moreover, Bond sales build a backlog of future purchasing power—good "business insurance" for all of us in the years ahead.

Payroll Savings is good for your employees, your business, and your country. "Push the button"—call in one of your top executives and appoint him Savings Bonds Officer. All the material and assistance he may need are available from your State Director, Savings Bonds Division, U. S. Treasury Department.

The Treasury Department acknowledges with appreciation the publication of this message by

NATIONAL SAFETY COUNCIL

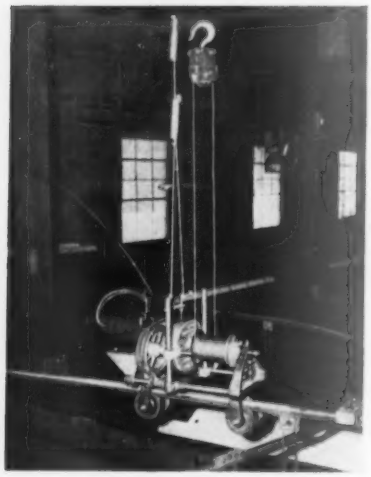
This is an official U. S. Treasury advertisement prepared under the auspices of the Treasury Department and The Advertising Council.

NEW SAFETY EQUIPMENT FOR INDUSTRY

Further information on these new products and equipment may be obtained by writing direct to the manufacturer. It will help in identifying the product to mention this announcement.

Power Hoist

A new, multi-purpose power hoist unit is now being manufactured by the Flinchbaugh Co., York, Pa. This electric unit lifts 500 pounds at 25 feet-per-minute or 250 pounds at 50 feet-per-minute. The unit comes complete with adjustable track trolleys for both single or double wheel



tracks, a ¼ h.p. single phase, reversing motor, cable for 10 and 20 foot lifts, grooved drum, automatic brake and conventional hook attachments. It will lift or pull distances up to 200 feet. In addition to hoisting, the unit can be adapted as a power unit at 62 rpm for running grindstones, and any other drive application suitable to speed and power rating.

Floor Machine

Lincoln-Schlueter Floor Machinery Co., 1250 W. Van Buren St., Chicago 7, announces a new unit called the Lincoln Cadet available in two models. One model

comes with plain handle and is used primarily as a floor polisher. The other is a rug and carpet scrubber equipped with a shampoo dispensing tank on the handle and necessary piping that directs the flow of solution through the rotating brush. Both machines are single disc. The machine has a full 10-inch brush spread and is efficient as well as easy to use. With interchangeable accessories, it may in addition to floor polishing or rug scrubbing, be used for steel wooling floors and for light sanding.

Bin Feed

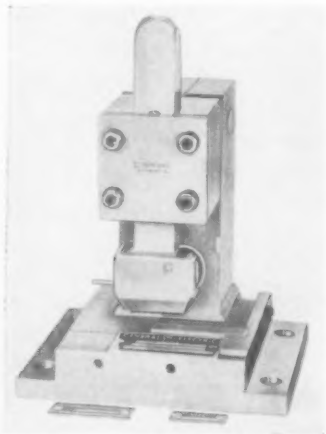
A new solution to the problem of feeding stubborn materials through bins and hoppers is provided by the PneuBin, a pneumatic device manufactured by the Gerotor May Corp., Baltimore 3, Md.

Pulsating panels, strategically mounted on the inside walls of bins or hoppers, keep materials moving by positive displacement, thus preventing arching, funneling and tunneling. Flexible covers for the panels are made of reinforced, abrasion-resistant Goodrich Armorite rubber. Air flow to and from the panels is automatically regulated by the "Pulsatrol" unit, permitting selection of a wide range of pulsation frequency, force and amplitude.

Special advantages of the device include direct action on bin contents rather than the bin, positive extrusions, easy installation, quiet vibration-less operation, safety and economy. Use of the device permits closed bin tops and bin storage of materials previously considered impossible to feed from bins. Applicable to all types of bins and hoppers, the PneuBin assures a flow of difficult industrial materials, such as foods, chemicals, minerals, soap products, pigments and dyes.

Metal Marking

A new hand stamping fixture for marking metal name plates is announced by M. E. Cunningham Co., 200 E. Carson St., Pittsburgh 19, Pa. Designated Model SF-100, this new tool is made from the



company's special Mecco safety steel to prevent spalling, mushrooming and injury to personnel. It can be fabricated to order for processing one or a group of name plates, checks and other flat metal objects.

The chase section in the bottom of the holder has adjustable horizontal and vertical gauges to facilitate stamping on any required panel. These gauges are locked and adjusted by standard thumb screws or set screws, and can be made in a variety of styles to suit round, square, rectangular and special shape plates. A hardened and precision-ground type holder fits into the upper arm of the machine. After each stamping it is pulled away from the plate by a spring return. The arm operates on a swivel which swings it upward when type is to be changed. Due to this feature the holder does not have to be removed to change type. During striking operations a utility hook retains the type in the holder. This hook is easily removed for quick type changing.

Portable "Samplair"

On-the-spot analyses of atmospheric concentrations of chromic acid mist in the automotive, electrical appliance and household utensil industries, and commercial chromium plating establishments, are now possible with the new, portable M-S-A Samplair. Manufactured by Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh 8, Pa., the device is also valuable in checking poor ventilation, defective piping and faulty processing systems. It is hand-operated, and can be used where power is unobtainable, or where electrically powered drives would constitute a fire or explosion hazard.

Basically a specially-constructed handpump, the Samplair is so simple to use that almost anyone with a minimum of instruction can make rapid and reliable estimates. The device draws 600 ml per stroke of the pump handle, and determinations are made by comparing the filter paper discs used for the tests with established color standards. The filters will indicate concentrations from 0.5 mg/10 cu. m. to 4.0 mgs/10 cu. m.

NEW SAFETY EQUIPMENT FOR INDUSTRY

Manufacturers are invited to send in announcements of new products, or improved special features. Only items which can be considered as "news" to our readers will be published.

Explosion-Proof Propeller Fans

Development of a new series of Type "X" explosion-proof propeller fans for for Class I, Group D hazardous locations, combining the performance features of the ILG type "Q" propeller fan and the ball bearing explosion-proof motor, has been announced by ILG Electric Ventilating Co., 2850 N. Crawford Ave., Chicago 41, Ill.

The aluminum Type "Q" propeller fan wheel of patented design, dynamically balanced for smooth, effortless operation, offers the extra air moving capacity characteristics of this recent development. The cast aluminum fan frame has streamlined air inlet for smooth, efficient air flow.

Eight models are available with one phase and three phase motors as listed. All sizes are suitable for horizontal or vertical operation. Explosion-proof fans are useful for ventilation in such hazardous places as oil refineries, paint shops, chemical plants, dry cleaning establishments, etc. These same models are suitable for static pressures up to ½", making them adaptable for a wide range of uses.

Adjustable Climber

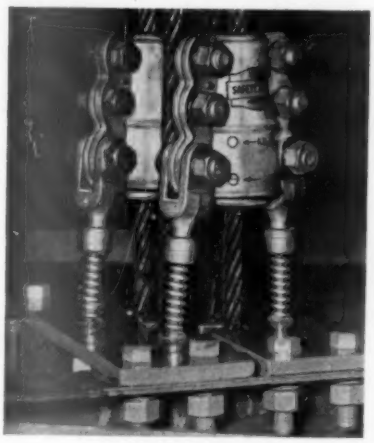
W. M. Bashlin Co., Grove City, Pa., announces their new adjustable climber with replaceable gaff. It is made of aluminum alloy and is light in weight, yet it has the same strength as equivalent steel.

The sleeve can be adjusted from size 15 to 18 inch in one-inch steps. This assures the fit required in order to attain comfort. The sleeve is securly held in place by one slot headed screw.

The gaff is held firmly in place by a triple locking device. The gaff is inserted into the gaff slot, shifted and locked into proper position and again locked in place with two self-locking slot headed screws.

Elevator Safety Clamp

Safety Devices, Inc., Third National Bank & Trust Bldg., Springfield 3, Mass., announces the new Lucas Elevator Safety Clamp designed to prevent elevator accidents caused by failure of babbitted sockets particularly on drum type elevators. The clamp is not intended to replace the conventional socket—it serves as a protective device over the socket and all shackle bolt connections. When socket



failure occurs, the inner sliding wedge clamp goes underward 1¼" in the outer case. The heavier the load on the elevator the tighter the clamp grips the broken cable. The wedge is made to fit most sizes of wire ropes used on elevators.

The company recommends that safety clamps be installed on car hoist ropes and on counterweights, depending upon the installation. The safety clamp is bolted securely to the top of the elevator crosshead by means of drop forged, steel yoke bolts which are available in different lengths. These clamps are available to fit all ½", ⅝" and ¾", 6 and 8 strand wire ropes of "Right Lay" construction.

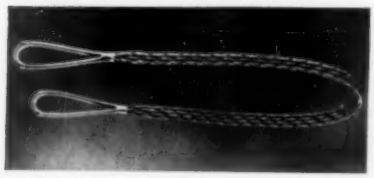
Lineman's Shoe

Albert H. Weinbrenner Co., 2025 N. Summitt Ave., Milwaukee 1, Wis., has developed a shoe made specifically for electrical linemen known as their "Pole-Hiker." The shoe is made with a long, wide, heavy, solid steel shank, anchored in heel and sole which gives solid support and stops frozen, dead-foot feeling. The insulating rubber heels are built up so the hooks can't slip, also extra layer of heavy leather reinforcement on the pole side. There is a built-in arch pad for extra comfort. Shoes are sewn solid of heavy, tough, oil-tanned leather that resists mud and wet. Rugged storm welt between sole and upper helps keep feet dry. Double-duty oak-tanned solid leather soles half an inch thick are cushioned with Armstrong Cork Filler. Shoes have heavy, solid brass eyelets and stud hooks.

The Pole-Hiker is available in the plain toe style or lace-to-toe style in sizes 6 to 12 width C-D-E-EE.

Wire Rope Sling

This flat-braided wire rope sling was designed to provide a relatively wide, flat bearing surface with the sling thickness held to a minimum. It is called "Macwhyte DREW 14-Part, Type 1 CT" and is made by Macwhyte Co., Kenosha, Wis., for special job applications.



The sling is fabricated from one endless wire rope. The sling ends terminate in natural loops which are fitted with Macwhyte Crescent Thimbles.

The sling was designed for a particular lifting operation requiring a sling with a maximum body width and minimum thickness in addition to light weight and flexibility. The sling is used in a basket hitch with the sling encircling the load and the two loop eyes on the crane hook.

Fire Killer

American-LaFrance-Foamite Corp., Elmira, N. Y., announce a new fire killer called Foamite Airfoam, a stable, cohesive, free-flowing, protein-base foam fire extinguishing agent. It is mechanically produced by scientifically designed Airfoam-Generating equipment using Foamite Airfoam Solution (a mixture of 6 per cent Foamite Airfoam Liquid and 94 per cent Water) and air—hence the name "Airfoam."

The liquid is composed of a specially treated protein of vegetable origin together with additives which control the viscosity, lower the freezing point, improve the foaming properties and control bacteria. Protein base insures a foam structure which does not readily break down but resists intense heat. Airfoam blankets fire with a thick, stable insulation which cuts off flame-supporting oxygen and smothers the blaze. It extinguishes fires both in ordinary free-burning materials

NEW SAFETY EQUIPMENT FOR INDUSTRY

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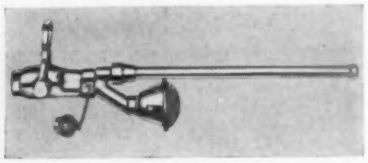
and in combustible liquids (Class A and B blazes). It works equally well with fresh water and salt water. It floats on the surface of burning liquids and smothers fire, without harm to petroleum products or other flammable liquids.

Fog Nozzle

Rockwood Sprinkler Co., 38 Harlow St., Worcester 5, Mass., has developed a new device which can be inserted in their SG-48 WaterFOG nozzle to make five different kinds of discharge from this one nozzle. The new FF Foam Extension Unit combined with the standard nozzle makes an all-purpose nozzle that will handle any type of fire in ordinary combustibles, flammable liquids or materials that can be extinguished with water alone or water mixed with foam liquid.



Rockwood Foam Liquid can be automatically mixed with water and supplied to the new FF Extension by means of the Rockwood hose line foam eductor or the company's latest type of foam proportioning systems built into fire trucks.

High velocity WaterFOG and a solid water stream is discharged from this nozzle when used with plain water or with wetting agent mixed with water. Low velocity WaterFOG is discharged from the standard extension applicator attached to the nozzle when used with plain water or wetting agent mixed with water. FogFOAM and a solid foam stream is discharged through the new FF Extension attached to the nozzle when Rockwood Foam Liquid is mixed with water.

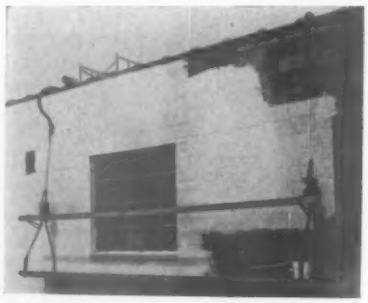
Halogen Analyzer

Davis Emergency Equipment Co., Inc., 45 Halleck St., Newark, N. J., is now making available a new instrument for the toxic range analysis of halogen derivatives of hydrocarbons, to be known as the Davis Halide Meter. The new analyzer employs a photo-electric photometer to indicate changes in the intensity of the blue spectrum of a copper arc discharge in the presence of organic halide vapors. The readings of the meter are accurate to within 10 per cent and the sensitivity for halide derivatives increases approximately as the number of halogen atoms per molecule.

The instrument is compact (dimensions approximately 15" x 16" x 9¾") and portable, weight 35 pounds, and operates on 110 volt, 60 cycle current. The manufacturer claims that the analyzer is particularly adaptable for detecting leaks of methyl chloride, dichlorodifluoromethane, methylene chloride, carbon tetrachloride, trichlorethylene, perchlorethylene and methyl bromide, etc.

Swing Stage

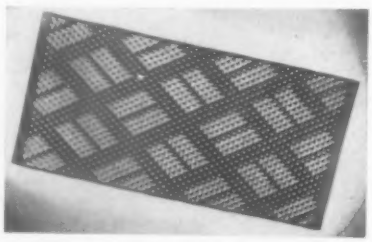
The Wilson-Albrecht Co., Inc., 3548 Wooddale Ave., Minneapolis 16, Minn., announce their new Waco Swing Stage. Features of this stage are its multiple safety devices, the automatic brake, and a pawl engaged in a ratchet. These safety devices are both doing the same work; therefore, if one should fail, the other will



hold. Three other safety features are the toe board, guard rail, and steel airplane type cable. Up to 150' of cable may be used on the drum and a sling arrangement may be employed when more cable is needed. Stirrups are available for platforms or planking 24" to 30" in width. Platforms may be had in a variety of lengths.

Link Mat

A new colored rubber link mat, designed for entrances, lobbies and corridors, has been developed by American Mat Corp., 1724 Adams St., Toledo, Ohio. The new mat, known as Ezy-Tred, differs in that the link size is ¾ inch wide and 1⅜ inch long. The links are woven on a framework of rust-resisting galvanized spring. The links remove dirt from foot traffic and hold it out of sight. The mat may be rolled up for floor mopping.



Ezy-Tred mats are made in any desired design or pattern of dark blue, orange, white, dark green, light green, grey, dark brown, light brown, red and black or in combination. The tred is a traffic silencer and also affords a high safety factor in preventing slipping and falls as well as providing comfort underfoot.

Emergency Splints

Emergency splints made of light, tough, fibreboard utilize the simple mechanical principle that a tube is stronger than the same amount of material in a flat strip. These splints now being sold by International Surgical Splints Corp., 395 Broadway, New York 13, N. Y., can be stored in first aid rooms or vehicles as flat, compact units. When applied to an injury, they assume a semitubular shape to fit the contours of the body or an extremity. Tied in position with bandages or strips of any convenient material, the splints keep the semi-tubular shape and the resulting rigidity insures immobilization of fractures or soft tissue injuries.

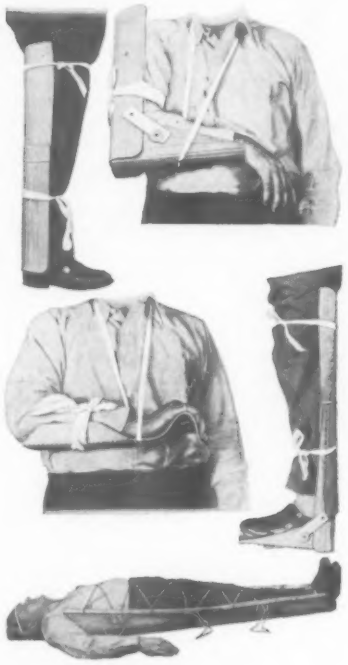


Illustration shows knee splint for immobilization of the knee joint; angular splint as used for fracture of the elbow region; hand splint for fracture or other injury of hand or wrist; knee splint and angular splint combined for immobilization of the entire lower extremity below the hip joint; body splint with knee splint attached in position to support head and neck.

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Corrugations and scorings in the fibreboard facilitate shaping the splints to fit any individual and also permit folding to compact size for storage.

Portable Ladder

Atlas Industrial Corp., 849 39th St., Brooklyn 32, N. Y., announces the introduction of a new, compact portable ladder of sturdy steel construction yet is extremely light in weight. It is easily carried in a passenger car. This ladder will extend from 4 feet to 24 feet and comes equipped with a safe working platform. Extra bearing plates and levelling screws for use in soft and uneven earth. It is easily knocked down for storing or carrying.

Automobile Jack

A new principle is involved in the new Vee Jack developed by Carahan & Henry, Inc., 1100 E. Douglas Ave., Wichita 7, Kas. As its name implies, it provides a "vee" type of support that is stable. It is rugged and of single-unit construction which folds compactly to fit easily into any

luggage compartment. Because its lifting action is gained through a high-leverage Acme screw, turning in ball bearings, the jack can easily be used. Lifting both the fender and the wheel, the jack makes wheel changing easier by providing ample clearance between wheel and fender. With a rated capacity of 3,000 pounds, the jack can safely be used with the largest passenger cars and many trucks and commercial units. The jack is being distributed nationally through automotive jobbers and accessory dealers.

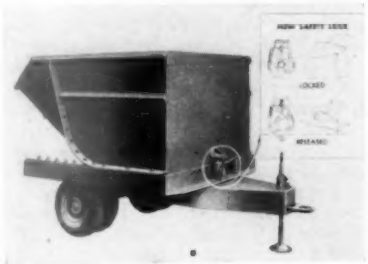
Insect Control

West Disinfecting Co., 42-16 West St., Long Island City 1, N. Y., announces a new Vaposector-Mistorizer combination for insect control. The combination features an improved 25-oz. ac-dc electric Mistorizer sprayer, adaptable to either area-fogging or direct-contact use. It is supplied with West's Vaposector insecticide.

The portable Mistorizer dispenses one ounce of insecticide per minute when used for fogging and one and a half ounces a minute for contact spraying. A simple nozzle adjustment makes the change from fogging to contact spraying use. In addition to the 1/10th hp. 25-oz. Mistorizer, which is intended for plants and service establishments, a full line of larger portable ½-hp and 5-hp compressor units are available for large-area insect-killing and control.

Dump Trailer

A new "Phil-Dump" trailer for heavy duty moving and dumping of all types of industrial materials has been developed by Phillips Mine and Mill Supply Co., 2313 Jane St., Pittsburgh 3, Pa. Designated Model DP-3B, this new dump trailer has a three cubic yard self-dumping hopper, with a new safety lock which provides positive locking and prevents accidental dumping of load.



Made from heavy gauge steel, this trailer has a delicately balanced hopper which automatically dumps when the safety lock is released. After the load has been dumped, the lock is designed to automatically lock the hopper in place when it returns to loading position. Other features of the trailer are: jack stand for accurate leveling; structural reinforcements with rolled edges to prevent injury to personnel and possible tearing of load; sturdy steel hopper and frame which ride on dual pneumatic tires, mounted entirely underneath the frame to provide a minimum over-all width. Simple in operation with a minimum of moving parts, the trailer is easily pulled and maneuvered by an industrial tractor. The new safety lock now is being supplied on the complete line of automatic dumping equipment with capacities ranging from ½ cu. yd. to 3 cu. yds.

Work Clothing

Chem-Wear Corp., 740 Broadway, New York 3, N. Y., has developed a line of work clothing such as coveralls, laboratory coats, matched shirts and trousers, jackets and bib overalls made with Union Carbide's "Vinyon" N yarn claimed to give a greater resistance to destructive chemicals used in industry. This resistance to chemicals is inherent in the fiber, the fabric is not treated. Although not fireproof, Chem-Wear is fire-resistant and will not support combustion.

Power Driver

Positive and easier automatic firing-pin action with no misfires or delays are the advantages claimed in the new design power-actuated tools for driving steel studs into metal, concrete or masonry, developed by Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh, Pa. The tools are used to install electrical equipment, pipe and duct hangars, metal door frames and other fixtures. New feature of the MSA Velocity-Power Driver is a spring-impelled firing pin that virtually eliminates the "human factor" in firing a stud-cartridge unit because the arrangement is positive in action, yet safe and tamper-proof. With the new design, the operator still must push the tool forward to fire the stud-cartridge, but the speed and force of the forward motion no longer are important to the operation. Now, no matter how slowly pressure is applied the tool can be operated satisfactorily. This enables its use in closely confined locations without misfiring due to hesitation by the operator. Also, it minimizes the possibility of an operator skinning his knuckles on adjacent surfaces while trying to push the tool forcibly forward.

Built-in safety features of the tool have not been affected by this design change. Before the cartridge can be fired, a spring-loaded safety arm in the handle has to be rotated 180 degrees and held in that position. Therefore, the cartridge cannot be discharged if the tool is dropped because the safety arm holds the firing pin away from the primer until it is rotated. Even if the firing pin spring is cocked, the pin will not contact the primer until the safety arm is rotated.

Stud-cartridge units for the tool are manufactured in .32 and .44 calibers. Barrels, large and small bores, are interchangeable in the tool for different calibers. Cartridge loads for the various types of material are light, medium and heavy and there are several different stud sizes and types. Cartridge heads are distinctively colored to identify the loads. The studs are electroplated to resist corrosion.

Flooring Material

Roc-Wood is a new kind of flooring material that goes on with a trowel. Comfortable and easy to walk on, it resembles cork in appearance and is durable and long-wearing. It is made up of the hardest kind of hardwood fibres, chemically treated and bonded together with an almost indestructible plastic binder. It hardens by chemical action, not by evaporation.

Roc-Wood may be laid anywhere conventional materials can be laid. It goes on over rough, uneven surfaces, without underlayments. It sets in about 4 hours—

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after 24 hours it is ready for unlimited use.

This new flooring material is a product of Roc-Wood Flooring, 364 E. 23rd St., Chicago 16, Ill.

Air Purifier

E. D. Bullard Co., 275 Eighth St., San Francisco 3, Calif., announces that the new Bullard six-outlet air purifier is now available. The purifier is light enough to be classed as portable, but has the air capacity of stationary models.

Standard ¼ inch tap threads permit ready attachment of any air line fitting to operate all makes of spray guns or air tools, plus any type of protective airline hood or helmet for operator protection. From one to six hoses may be attached. Working pressure is preset and controlled by a pop-off valve installed ahead of the manifold receiver. Capacity of this new purifier is from 10 to 35 cubic feet per minute of free air, with a maximum working pressure of 100 lbs. per square inch. Combined chemical and mechanical air filtering is provided by a long-life filter cartridge which is quickly replaceable without special tools.

Emergency Lighting

A portable emergency lighting system being marketed by Electric Cord Co., 30 Church St., New York 7, N. Y., supplies instant light from its own power when usual source of current fails. Each lamp head delivers about 100 watts of light and is capable of illuminating approximately 10,000 square feet for about five hours.

The lamp heads are adjustable to any position and may be removed from the unit for installation on walls, stairways, etc. When normal current is resumed, the lights automatically go out and a built-in charger restores power to the battery for the next emergency. No special wiring is required, simply plug into any convenient outlet in the lighting circuit and the system is ready for emergency service. The unit carries the approval of Underwriters' Laboratories.

Aerial Revolving Ladder

The American Coach & Body Co., 9503 Woodland Ave., Cleveland 4, Ohio, announces a new Hydraulic Aerial Revolving Ladder. The ladder is specifically designed for reaching higher working heights than is possible with present manually operated revolving ladders and for reaching them with less effort. The ladder can be positioned at any point in an 85 degree arc and rotated through a complete 360 degree circle. The new ladder, Model 35LD20, places a workman on a platform 35 feet (maximum) in the air. Servicing street lights, overhead lines, signs and other overhead work is quickly accomplished. Some companies use the ladder for attaching pole hardware and stringing lines, reducing pole climbing.

Power for the hydraulic system is supplied by an SAE power take-off mounted on the chassis transmission. Eighteen seconds is all the time required to raise the two-section ladder. A simple lever controls the actuating valve, the ladder locking automatically in all raised positions. The ladder fly section is extended manually. Rotation is controlled by a positive worm wheel drive with locking brake. The operator, standing on lower platform step, has all controls within easy reach. Other safety features are: Lower ladder framework is made of high-tensile steel, ladder rails of specially treated straight-grain Sitka spruce. Steps are skid-proof, rungs are high-strength, tubular aluminum alloy with ribs for sure footing. Truss rods are fully insulated. Platform is curved so lowest point of its arc provides a positive level regardless of ladder inclination angle. Toe rail prevents slipping. Two hand grips mounted at extreme end of upper ladder section also serve as a strong mount for attaching safety belt.

Ladder can be mounted on any chassis of ton and half or heavier with dual rear wheel. Dimensions include over-all length (telescoped) 20′; over-all height in traveling position 5′9″. Swing radius within body, 22″. Maximum reach at 30 degree inclination from horizontal, 28′. Weight 950 pounds.

NEWS ITEMS

H. R. Albertson, former district sales manager of Armour & Company's Industrial Soap Division, Philadelphia, has joined the Mione Mfg. Company, Collingdale, Pa.

* * *

The appointment of L. E. Jordan as general sales manager of Scott Aviation Corp. has been announced by Earle M. Scott, president. Mr. Jordan resigned as vice president in charge of sales promotion of the Melvin F. Hall Co. of Buffalo, to accept this new position, with which comes complete responsibility for sales in the company's aviation, safety and medical markets.

* * *

During the winter months Union Wire Rope Corp. of Kansas city has established offices and warehouses at 155 Howell St., Dallas, Tex., and at 903 Del Paso Blvd., No. Sacramento, Calif. This makes a total of 12 strategically located, fully stocked and staffed branches functioning as distributing lines between factory, distributors and users.

* * *

A Schrader's Son, 470 Vanderbilt Ave., Brooklyn 17, N. Y., announce the appointment of D. F. Cisney as advertising manager, replacing D. S. Hunter.

Walter C. Manville has been employed as resale representative for the Denver territory. Mr. Manville was formerly with U. S. Rubber Co. and more recently operated his own service station and retreading shop in San Diego, Calif.

* * *

National Foam System, Inc., announces the removal of their Philadelphia offices to the plant at West Chester, Pa. National Foam specializes in manufacture of foam fire fighting products, including all types of chemical and mechanical systems.

* * *

Additions and promotions announced by E. W. Bullard, president of E. D. Bullard Co., 275 Eighth St., San Francisco, Calif. include George R. Huffman as advertising manager and E. W. Bullard, Jr. as assistant to vice-president in charge of sales, Alpheus Bull.

Edward Bullard, Jr. joined the organization as salesman following his release from wartime service.

George Huffman joins the organization after having served as Bullard's advertising counsel since 1940 through Wank and Wank Advertising Agency.

* * *

Listing of the Davis Vapotester by the Underwriters' Laboratories was announced by Frank Davis, Jr., vice president of the Davis Emergency Co., Inc., Newark, N. J. The Vapotester, also approved by the Laboratories of the Associated Factory Mutual Fire Insurance Companies, is a Davis engineered instrument for the detection of combustible gases and vapors.

Operating on the principle of the Wheatstone Bridge Circuit, the Vapotester reads zero gas or vapor to the lower explosive limit.

TRADE PUBLICATIONS
in the Safety Field

These trade publications will help you to keep up-to-the-minute on new products and developments in industrial health and safety equipment. They are free and will be sent by manufacturers without obligation to readers of NATIONAL SAFETY NEWS who are responsible for this work. Send in the coupon below checked for the publications you desire. Please make your requests promptly.

1. **Safety Feeder:** Circular which describes the Pres-Vac Safety Feeder that produces a vacuum by passing compressed air through a venturi. The device is used to hand-feed small parts into a press. F. J. Littell Machine Co.

2. **Fire Extinguisher Inspection Chart:** A periodic inspection chart which will help fire inspectors keep accurate records of fire extinguishers. Space provided for 26 inspections of up to 38 extinguishers. Ansul Chemical Co.

3. **Safety Enclosures for Conductor Bars:** Informative bulletin with illustrations and explanation of installation and safety enclosures for existing figure-8 conductor bars. Specifications diagrammed, parts and system catalogued. Calabar Corp.

4. **"Color Conditioning":** A booklet of ways and means to make use of color for greater safety and efficiency, better visibility and working conditions, and increasing production. E. I. DuPont de Nemours Co., Inc.

5. **Electroforged Steel Grating:** Bulletin describes advantages and details on construction of Blaw-Knox Electroforged Steel Running Boards and Brake Steps. Also contains dimensions and specifications of standard steel panels for railroad equipment requiring platforms, for boxcars, etc. Blaw-Knox Division.

6. **"No Floor Chopping":** Folder describes resurfacer used to patch or overlay floors of all types, including concrete, brick, asphalt, wood, or composition floors. Repairs can be accomplished over a week end. Stonhard Co.

7. **Safety for Shot and Sand Blasters:** A new bulletin describing personal protection equipment for shot and sand blasters. Also included are photographs and detailed information on diaphragm-type air compressor, clean-air blower, valves, filters, and pressure regulators. Mine Safety Appliances Co.

8. **Guide to Improved Plant Lighting:** 32-page booklet covering Planned Lighting, showing benefits gained, and results produced by proper lighting. It includes operations requiring special lighting maintenance factors, influences on operating costs and others. Benjamin Electric Mfg. Co.

9. **"Studies in Centralized Lubrication":** A booklet on results gained by installation of Centralized Lubrication systems. Contains testimonials of users, and how costs of operation may be reduced and equipment made to run smoothly and efficiently. The Farval Co.

10. **"Aquatic Search & Rescue Kit":** Pamphlet describes the Aquatic Search and Rescue Kit for saving lives and recovering bodies from water, fire, etc. Diagrams show kit in use, and potentialities. Des Moines Steel Bldg. Co.

11. **"Ladders and Scaffolding":** A pamphlet showing possibilities and uses of ladders and scaffolds, and describing safety features, containing illustrations of different types. Also describes for what operation each ladder or scaffold may be used, including generalities. John S. Tilley Ladder Co.

12. **Judging Fire Hose:** This booklet describes four inventions or improvements in construction of fire hose, enabling firefighters to get water on fires quicker and easier, returning apparatus to service. Compares, also, two constructions of fire hose. Bi-Lateral Fire Hose Co.

13. **Sanitary Survey Service:** A booklet setting forth results obtained and reduction of costs by proper application of sanitation. Survey is made, and report discussed by staff of sanitation workers. Survey covers inspection, consultation, and cooperation with subscriber. The C. B. Dolge Co.

14. **Floor Maintenance Machines:** Pamphlet describing different types of floor maintenance machines and operations. Reduces worker fatigue, saves time, and permits worker to attend to other pressing duties. Services many types of floors. Also lists accessories. Breuer Electric Mfg. Co.

15. **Safety Clothing and Equipment:** A well-illustrated catalog on the different types of safety clothing and accessories for all branches of industry. Safety Clothing & Equipment Co.

16. **Electric Heating Mantles:** Bulletin No. 4 illustrates different types of electric mantles for safe, economical heating of flammable liquids. Mantles reduce glass breakage. Power input controlled with alternating current by means of a variable transformer. Glas-Col Apparatus Co., Inc.

17. **Modern Lens Cleaning:** An illustrated bulletin showing methods of cleaning goggles and glasses by use of special cleaning fluid and tissues. Promotes safety through better vision. Also increases efficiency and production. The Wilkins Co., Inc.

18. **Rolling Scaffolds & Towers:** Folio of information and pictures showing scaffolds, towers, and swing stages and defining uses, plus time and money-saving possibilities. Many sizes and types illustrated, describing safety appliances, and potentialities. Wilson-Albrecht Co., Inc.

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JULY, 1950

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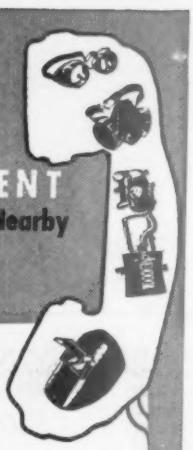

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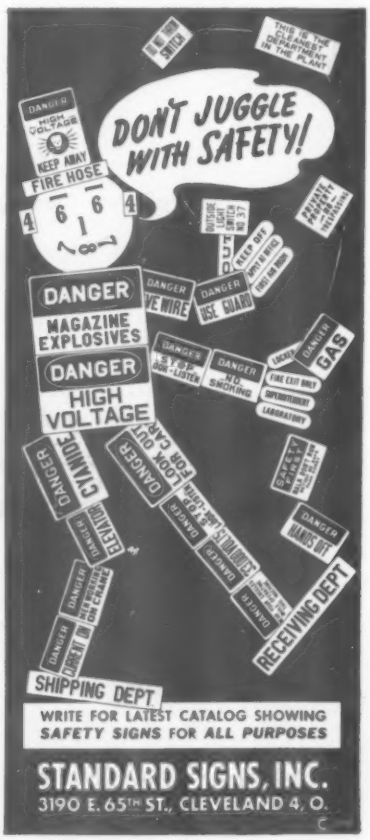

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